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THE GLEANINGS OF **BEE CULTURE** A JOURNAL DEVOTED TO BEES, AND HONEY, AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

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No. 20.

STRAY STRAWS FROM DR. C. C. MILLER.

I SEE ON PAGE 709 that the president read one of R. L. Taylor's papers. That makes me think more of McKinley than ever.

IT DOESN'T SEEM such a great many years since all our previous lighting-arrangements had to be thrown away to make way for something to burn kerosene, and now comes that new light mentioned on p. 713 to knock kerosene out.

WANTED! A plan to get a colony of bees to empty the honey out of a super without allowing bees of other colonies to touch it. [While you are putting in your specifications, doctor, please add that those same bees must put it in the brood-nest below.—ED.]

YOU SAY, MR. EDITOR, that I haven't told you whether I had a good honey year. I've been so busy taking care of the crop I haven't had time to tell you. But it's been a grand season. Tell you more about it later. [Good! I feel like throwing up my hat.—ED.]

WHITE DUTCH CLOVER is pretty much the same thing as white clover, according to A. I. Root, p. 706. Friend Root, may be you'd be willing to oblige an old friend by dropping out that "pretty much," or else telling the difference between white and white Dutch. [I do not believe "A. I. R." can. To my eyes they look exactly alike. "Pretty much," I suppose, slipped in accidentally.—ED.]

FRIEND A. I. ROOT, you touched on one of the crying evils of the day, p. 715. Tipping is a kind of stealing that takes the manhood out of the recipient, but after all isn't the fault with the tipper? If all had the backbone you had, and stood out against it, the practice would soon be stopped. But one is all broken up over deciding what's the right thing to do on a Pullman sleeper, when one knows the poor porter will starve if one doesn't tip him.

USE FOR PROPOLIS. A California writer in *American Bee Journal* says he saves up clean propolis, and always has a ball of it on hand. When about to hive a swarm, he rubs the in-

side of the hive vigorously with the propolis for a minute *immediately* before hiving the bees, and has not lost a swarm for many years. [It is possible that propolis may give a hive somewhat of a homelike smell; but I should really expect moonshine to have just as much effect.—ED.]

WHY ARE FREAKS with eyes of different colors found only among drones, and not among queens and workers? [We know that the males in the bird kingdom are usually more highly colored and in other ways handsomer than the females. In the case of the birds we would suppose that the high colors were intended to attract the attention of their more somber-colored sisters; but it would be a pretty big stretch of fancy to make a like comparison in the case of drones and queens. I give it up.—ED.]

SAY, ERNEST, wouldn't you like to see the finest show of horses ever gotten together? That's what's expected to be at Chicago at the time of the Northwestern bee convention. Now, what more can I say to coax you to be on hand Nov. 10, 11? Plenty of beefsteak too. [You will have to trot out something better than horses to get me to come. I used to be quite a horse-crank; but the bicycle has completely supplanted the horse in my affection. Beefsteak—well, yes. That is appetizing. Well, what else have you to attract a Buckeye chap just like me?—ED.]

"BEE CRANK" says, in *Southland Queen*, that he saves money by using extra-thin foundation in brood-frames. Fasten the foundation in frames, hang two or three frames in rather light colonies that are building comb, and as soon as they draw out the foundation it is safe to hive swarms on. [I should not be surprised if Bee Crank were right; but the handling of those frames, putting them into and taking them out of light colonies for the sake of getting the bees to fasten and stiffen the foundation, would be a great deal of extra work; and if time is worth any thing, brood foundation at a slight additional cost would be cheaper in the end.—ED.]

"PERHAPS if an experiment station could take hold of it, something might be done."—*Editor*, p. 695. You're with Prof. Cook in thinking no one but some scientific fellow can breed for improvement. Did the experiment

stations give us five-banders? Have they given us any improvements in bees? Have all the stations put together done as much "along this line" as Doolittle? Say, what'll you take for a good glossometer? [Doolittle—well, I would make an exception in favor of him. He has already bred light-colored bees and yellow Italians that he says will cap honey as white as blacks. Now tell him to stretch the tongues of those same bees and we will make a glossometer to measure them.—ED.]

HERR GRAVENHORST says that, after having tried hundreds of cases year after year, with half his swarms supplied with starters at the beginning, and full sheets of foundation later, and the other half with full sheets from the start, he is thoroughly convinced that, on the average, they do better to begin with the starters. [Gravenhorst is the editor of the *Illustrierte Bienenzeitung* (Illustrated Bee-journal) published at Braunschweig, Germany, and a bee-keeper of international reputation. If he sees this I hope he will tell us how he came to this conclusion. If he is right, then a great saving of foundation could be effected. It would be a bad thing for the supply-dealer, but a good thing for the bee-keeper. Let us have the truth, anyhow.—ED.]

L. L. SKAGGS thinks it a great mistake to suppose that bees do not thin the septum of heavy foundation. He made a quantity of foundation which weighed four sheets to the pound, and the bees thinned it so that one could hardly tell the difference, when chewing it, from natural comb. They used the extra wax to build the cell-walls.—*Southland Queen*. But it doesn't always work that way. [I do not think it is claimed—at least we have not done so—that the bees *never* thin the bases of foundation; but I think that, as a general rule, they do not; and we might say they never do if honey is coming in fast; but they almost invariably thin down the walls, but do less of this thinning if honey is coming in rapidly.—ED.]

P. A. SIOLI says in *American Bee Journal*, that he thinks the queen has an influence over the morals and manners of the workers. He had some vicious blacks that were lazy, and formed a nucleus from them, giving the nucleus an Italian queen, and the blacks of that nucleus at once became gentle and industrious. A more marked case came in my experience, in which a queen was killed because her bees were so cross, and the temper of the bees seemed to be changed utterly by a change of queens, and that, too, before the old bees had time to die off. [This question was discussed a few years ago, and the general verdict then seemed to be that the queen did seem to have quite a toning-down effect upon the bees of the hives, even though they were not her daughters.—ED.]

C. P. DADANT, basing his belief on 25 years' experience with a number of out-apiaries, is emphatic that bees do not work to any advantage more than two miles from home. They travel furthest where the country is smoothest, with no hills to climb or heavy timber to pass.—*American Bee Journal*. [My limited

experience goes to show that Dadant is about right. The bees at our basswood orchard are only about a mile and a half in a bee-line from our home apiary; and yet our home bees have never flown to the basswoods, when in bloom. I do not mean to say that the bees have *never* gone over a mile and a half; but as long as they can get plenty of nectar in short ranges they will not go long distances. If forage is scarce and at long range, bees will, of course, take long flights. All depends upon locality, character and extent of the honey-flow, and the sources of nectar.—ED.]

THE OLD-FASHIONED PLAN of raising a hive half an inch or an inch on four blocks during hot weather seems coming again into favor. Some are troubled with the thought that the bees are hindered about getting on the combs, there being no place for them to climb up except at the four corners. I don't believe it's worth while to worry over the matter so long as the bees don't, and in actual practice you don't find a lot of bees waiting for a climbing-place. [I do not believe that bee-keepers realize the advantage there is in having plenty of space under the brood-frames, with a deep entrance, during the honey-flow, when the weather is hot. I am not a prophet nor the son of a prophet, but I believe the time is coming when wide deep entrances will be used exclusively; and I have a feeling that swarming will be very materially reduced thereby. Of course, when the honey-flow is over, and robbing is the order of the day, then it may be advisable to contract the entrances down. Aside from the trouble of swarming, deep entrances would prevent loafing to a great extent, and to a like extent the melting-down of combs. Keep on talking about and considering the idea, brethren, until bee-keepers begin to "sense" it, as Samantha Allen would say.—ED.]

"I NEVER SAW a queen pipe yet but there was a decidedly tremulous motion to her wings," quoth ye editor, p. 694. I never saw a horse neigh but there was a decidedly tremulous motion to his tail. But cut off the tail and the horse will neigh just as well; and cut off the wings, and the queen will pipe just as well. Frank Cheshire says, page 157, Vol. II., speaking of piping, "It is certain that the wings are not concerned in its production, since queens clipped so vigorously that not a vestige of wing remains can be as noisy as others." [Cheshire's argument looks like a clincher; and while I am inclined to believe he is right, I should wish to know first whether he was taking hearsay evidence that queens would pipe when both wings are cut off close, or had actually tried the experiment himself. I may have to, but I do not want to give up, that the wings have nothing to do with the matter until I have tried cutting off the wings. If I should go right now into the apiary and do some close wing-clipping I might have to wait days and even months before the queen would pipe before my waiting eyes. But, say, doctor, our Ohio horses do not give a tremulous shake to their tails when they neigh, so I do not see

the force of your argument; but then, your *locality* may have quite an effect upon beliefs' tails.—ED.]

BEE-KEEPING AS A SPECIALTY AND AS A SIDE LINE.

Changing One's Mind; Why the Professional Man and the Farmer Should Keep Bees; California Fruit-men the Friends of the Bees.

BY PROF. A. J. COOK.

Editor Gleanings.—Our good friend Dr. Miller in a recent note referred to me as having changed my mind, in that now I believe in bee-keeping for others than specialists. I have changed my mind very often, and am not a whit ashamed of the fact. Emerson says, not to change is to die. Surely one who never changes his mind must be very inconsequential indeed. But in this matter I have not changed my mind; for of old I used to argue stoutly with such staunch defenders of the faith as Bingham and Heddon, they contending that only specialists should engage in the pursuit, while I was as emphatic in the position that the ranks should be swelled by any who would go at the work earnestly, intelligently, and with the persistence that could not fail. Later I had the same discussion with our friends Taylor and Hutchinson. I always believed I had the weight of the argument on my side, and still think so, and hence have not changed my mind at all.

One fact alone, it seems to me, settles the matter on my side, to wit: Some of the very brightest and most successful apiarists have not been specialists, but, rather, amateurs; or at least the bee-keeping part of their work was their avocation, and not the main part of their work. Langstroth, Bingham, the Oatmans, and even the senior editor of GLEANINGS, became noted as bee-keepers before it was their leading pursuit. I believe that the majority of those who have had the best success, and have done the most for the pursuit, have been those who have made bee culture only the pick-up work. I perhaps feel more sensitive regarding this matter, as bee-keeping has never been my leading pursuit; yet it has been a very great pleasure to me, and a source of no little profit as well. I know of several farmers who have cared for their farms well, and at the same time have made large profits from bees. I have a brother who has a large well-tilled farm; and although he cares for the farm all himself, yet he keeps a good-sized apiary, and for three successive years he made more from his bees than from all the rest of his farm. With such examples before us, is there any wonder that some of us believe that others than specialists may well keep bees? I am sure that my brother would laugh at such a proposition.

The fact that the pursuit of bee-keeping does not occupy one all the time, and the further fact that, in off years, there is little or nothing to do, makes it all the more desirable that bee-keeping alone should not occupy

one's entire time. By a little planning one can combine bee-keeping with some other pursuit, so that neither will interfere with the other. This not only has the merit of keeping one well employed all the time, but also gives variety to the work, and so makes life more enjoyable. A variety also is recreative, and so rests one and makes his work more productive, and at the same time adds greatly to one's health and vigor.

In the face of the many noted examples, I need not say that it is quite possible for one to master bee culture, even though he is deeply absorbed in other work. The very study required not only brings keenest pleasure, but often gives a discipline that makes one more capable in other lines of work. I am sure that there are lawyers, doctors, etc., who do better work in their practice because of the restful pleasure that they get in the care of their bees. I have known some remarkable cases of just this kind. A perplexing law case is not a very effective sedative. Any thing that will help one to forget the disquieting experiences of the daily life will add to one's effectiveness as well as to his length of days.

I have often worked in my study until the weariness was overpowering, and went forth to work in the apiary, when shortly I had forgotten that I was weary, and went back to my study able to do what would have been otherwise quite impossible except for the restful pleasure received in the apiary.

There is another argument, from the standpoint of economy, that should have some weight. The bees are needed in every garden and orchard to do the work of pollination. If the specialists are depended upon, many a fruit-grower will suffer. Not a few California fruit-growers now arrange to have bees in the orchard. They find that this pays well. The pomologist may well study to care for bees, and then he may be independent, and keep his own bees.

The argument on the other side is, that the specialist will learn and practice better methods, and so will do nothing that will harm the pursuit. But does he do better? I have been in a great many bee-yards, and I have seen as much perfection among the so-called amateurs as among the specialists.

In view of all these facts, I am, as I have always been, in favor that all who feel moved to do so, and will take hold of the matter with vigor, shall embark in the bee business.

NOTES.

The fruit-men of California have ceased to denounce the bees. We rarely hear other than praise of the little honey-gatherers.

The present season has been a very good one in Southern California. Many bee-keepers with hundreds of colonies all in one place have taken over 100 lbs. of finest honey from each colony.

Claremont, Cal., Sept. 25.

[I most sincerely admire that spirit in any man who is frank enough to admit that he is liable to error, and is therefore not only willing to change his preconceived notions, but is

willing to come out and confess it. Somehow I have confidence in such a man.

In regard to specialists, if accurate figures could be gathered I believe that 90 per cent—yes, 99 per cent—of all the honey that is produced is by the class that you have so ably defended. At the Buffalo convention, made up of some of the most extensive honey-producers of the world, the request was made for all to rise to their feet who made bee-keeping their sole means of livelihood. Scarcely one arose. To my personal knowledge, there were farmer bee-keepers present at that meeting who produced anywhere from 40,000 to 75,000 pounds of honey in a single season. One might almost call them specialists; but the fact remains that they are also quite extensively engaged in farming. In fact, when one goes by their places, as I have recently done, the big bank barns, broad acres of wheat and corn, and flocks of sheep, are more suggestive of agriculture than of apiculture.

But Prof. Cook very properly is urging the claims of the small bee-keeper who takes up bee-keeping as a recreation, as well as a business that will yield some revenue. Many and many a professional man would be broken down by nervous prostration were it not that he could rest his tired brain by turning it now and then to something else entirely different from his main line of work. A very large number of such long for the time when they will be able to go on to a farm; but the time never comes, for the very reason that they must leave town and quit their professional work, which they are loath to do. But bee-keeping, if they only know it, is a side issue that they can carry on without moving from town; and their back yards will probably give them all the room they require. It is from this class we find some of our brightest bee-keepers.

The question is asked a good many times, "Would you advise me to give up my business and make bee-keeping my sole means of livelihood?" We almost invariably reply something after this fashion: "The bee business is too uncertain. Stick to your life work, and make bee-keeping a side issue; and then if you have a series of poor years for the bees you will not be bankrupt. Specialties in trade are all right in their place; but specialties in rural pursuits are a little risky. Where there is one Terry who can make potato-growing a specialty and a success, there are thousands who will do better to carry on mixed farming. Where there is an Elwood or a Hetherington or a McIntyre who makes bees a sole means of livelihood, and is successful at it, there are thousands who would do better to carry on bee-keeping in connection with some other pursuit."

Dr. C. C. Miller comes very near being a specialist; but if one were to ask him whether his bees gained for him all his board and lodging, he would say no. He dabbles a little in farming and a good deal in literary work. His pen (or, rather, his typewriter) consumes a good part of his time. Whether his literary work nets him as much as his bees is doubtful.—Ed.]

BREEDING FOR LONG TONGUES.

Square Bottom-bars Not Satisfactory, and Why.

BY J. O. GRIMSLEY.

I have just finished reading GLEANINGS for Sept. 15th—have read *every word* in it, and can't help expressing my appreciation of such a valuable journal. The truth is, GLEANINGS improves with each number. But I think I'd better stop this "flattery," as some may construe it, and get down to what I wanted to talk about. There were two or three things I was particularly interested in, as my mind had been "hungry" for something on these subjects.

"Breeding for long tongues." Why not? I think Prof. Cook is talking just right; and all that we really need now is those "tongue-gauges" he mentions. But who will get them up? and what will be the cost? Suppose all our queen-breeders (or, say, the members of the National Queen-breeders' Union, now in course of organization) were prepared to advertise daughters of "A No. 1" breeders, whose tongues measure, say, 4.9, 5.3, or whatever number of millimeters it is. We often see advertisements of "red-clover" queens, which, in my opinion, are very delusive. I am confident there is a great difference in the length of the tongues of bees, and now let us not permit so valuable a suggestion to die in the "pupa."

I see considerable said about "bottom-bars." Some say *square*, some say "nix." On that line I want to give my experience, although it may not be so extensive as that of some of the veterans. The first bottom-bars I ever used were square— $\frac{3}{8}$ —and I thought they were *the* thing; but the truth is, if the hive were perfectly level (as it should be) the combs were *never* built to the bottom-bar. If one side of the hive chanced to be lower than the other, the bees would build the comb down past the bottom-bar, and would nearly always fasten it to the side; but I don't want those "whopper-jawed" combs, and I hardly think any other apiarist does if he is a good one.

My trouble did not end there. When I put on extracting-supers I soon found that, between the bottom-bars, would always be a "mess" of burr-comb; and while the bees would "build down" better in the super; it took a *perfectly* level hive (or perpendicular end-bar, if you please) in order to get a decent comb. Then came the job of (or, rather, the experience of) changing to a bottom-bar an inch wide, which has given much better satisfaction. With this I find the same difficulty in getting combs "built down" except in the super). I see that some of the readers advocate a V-shaped bottom-bar, which *may* be all right; but I want to tell you that, during the coming season, I am going to make a lot of frames (for experiment) with an inserted comb-guide, the same as is illustrated in your "all-wood frames"—the guide to be on top of the bottom-bar, of course, and the bottom-bar the same width as end-bar, which will leave only a bee-space between the bottom-bars. I

am inclined to think the bees will build down to this.

"Oh!" some will say, "that comb-guide will take up too much space."

Now, don't condemn the idea till you try it and see that it is no good. If any one has already tried this I should like to see a report of his experiment. It might save me the trouble of making a failure.

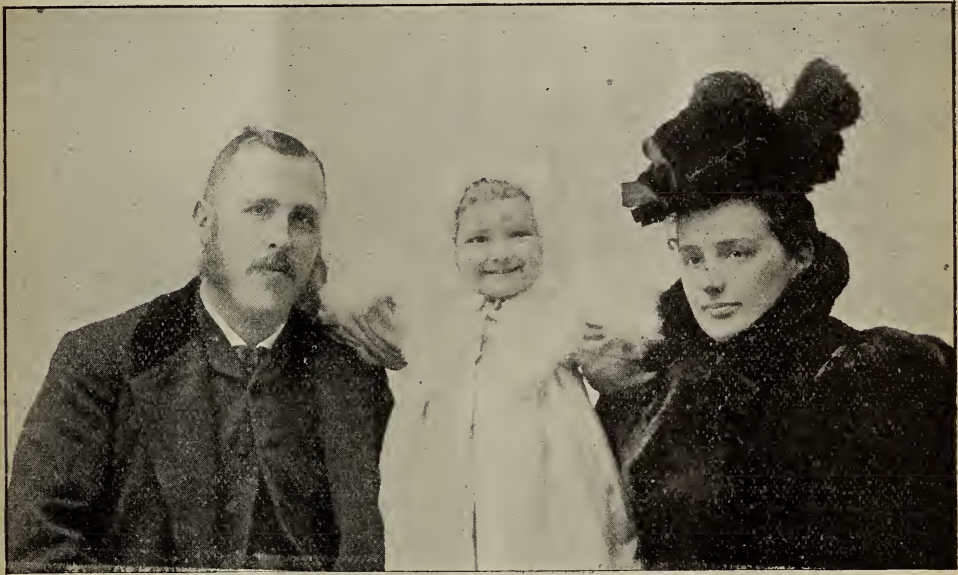
We had prospects for a real good fall honey-flow, but it was cut off by a cold rainy spell.

Byrdstown, Tenn., Sept. 23.

[Along about the middle of the summer I expressed a leaning toward square bottom-bars; but since that time I have paid particular attention to square and wide bars, as I have been looking over the hives. The former are objectionable for the very reasons you have mentioned, and I am not sorry we drop-

ped them. A bar $\frac{3}{4}$ inch wide and $\frac{1}{4}$ inch thick suits me as well as any thing, I now think.—Ed.]

termed it, sitting on a thistle near some hives, and asked permission to go to the house and get his gun. While the boy was away the bird made a swoop out over a hive, and I recognized him instantly as a whippoorwill. I watched him then until the bees were all in, when he took his departure, and before the gun came to hand. If some of us don't catch the yellow fever by next Monday night, this whippoorwill will pay the penalty for eating my Italians. I am ashamed to say that this is the first evening that I have been among my bees for several months; and to find a robber of this size and capacity among them is rather a surprise. It is the first time the possibility of the whippoorwill's eating bees has ever been suggested, to my knowledge; but there can be no doubt about the fact. I saw him swoop and hover in front of the hives distinctly three times; and if nothing prevents



W. A. SELSER, WIFE, AND BABY.—SEE EDITORIAL PAGES.

ENEMIES AMONG THE FEATHERED TRIBES.

The Whippoorwill, or Night-hawk, of the South; King-birds.

BY T. S. FORD.

The writer has a bit of information for Southern bee-keepers that will be of interest. It is in relation to a new enemy to the apiarist. Going about dusk to the apiary this evening, for the purpose of feeding some weak colonies, my son called my attention to a hawk, as he

I will verify my own statement next Monday night by examining his maw.

Our whippoorwill is very different from yours, being much larger, and has a different note. He is properly a night-hawk.

Before closing this letter I will wait till Tuesday, so as to be certain.

Sept. 27.—Late this evening my son killed the whippoorwill, sure enough; and on examination of its crop we found the proof of his guilt in the shape of a wad of partially digested bees.

You will find inclosed a feather from the tail, which will give you an idea of the color of the bird. On a close examination the plumage is very beautiful, though the coloring has a somber appearance. On a careful measurement the mouth of this specimen was

found to be $1\frac{3}{4}$ inches in width. The distance from the tip of one mandible to the tip of the other was $2\frac{3}{4}$ inches, when widely extended. This individual had taken up its quarters within 100 yards of the apiary, in the shade of a dense thicket, I find on inquiry, as he has been seen there many times this summer.

When mating, our whippoorwill is a noisy fellow; but after July he is perfectly silent. It was a great surprise to find this specimen here so late, as the other fly-catchers migrated some time ago.

In writing to the *American Bee Journal* last year, the habits of the king-bird, or bee-martin, being the subject, it was mentioned that, in the fall, the king-bird was good eating. My son killed some for me this fall, and a more delicious morsel was never tasted. They were loaded with fat, and on being opened gave forth the odor of the magnolia seed. This was a great surprise, inasmuch as I had supposed that they were entirely addicted to insect diet. Several weeks ago great flocks of these birds (or, rather, vast numbers of them) could be seen any fair day, being then on their journey south.

The whippoorwill was served up for supper, and was himself not at all bad, so the children report.

The writer is shut out from the world by an impassable quarantine, and can testify to a very novel experience, which, however, would not interest the readers of GLEANINGS.

Scranton, Miss.

T. S. FORD.

[I do not know just how it would be in the South; but in the North but very little attention need be paid to the alleged depredations of the king-bird and other enemies of the bees among the feathered tribes, except in the queen-rearing apiaries. The use of a shotgun or small rifle to kill and scare away king-birds (as I believe them to be particularly fond of young queens when on their wedding-flight) is sometimes advisable. I remember quite distinctly that, a few years ago, we were losing quite a number of our young queens. King-birds were quite frequent visitors at our apiary. I finally shot a few of them with my rifle, and the rest disappeared. About this time our queens began to be mated again with the usual regularity. While I can not be positive that king-birds actually made away with the queens, the disappearance of the king-birds and the non-disappearance of queens was somewhat significant.—ED.]

PARAFFINE PAPER FOR COVERING SECTIONS, AND THICK TOP-FRAMES.

BY F. L. THOMPSON.

[About a year ago I reported that Mr. Danzenbaker had secured some very nice clean comb honey, the sections of which had not been touched by a scraper-knife, and which had secured the first prize at one or two of the State fairs. This happy result Mr. Danzenbaker attributed to the use of paraffine paper.

At other times I have said much in favor of thick-top frames as being especially free from burr-combs (not brace-combs). As I have been an exponent of both ideas I am very glad to give the results of an un-

favorable experiment with both paraffine paper and non-burr-comb frames; and while I do not think one swallow makes a summer, I am glad to give this report prominence in our columns, without a comment. If friend Danzenbaker chooses to reply he can have space.

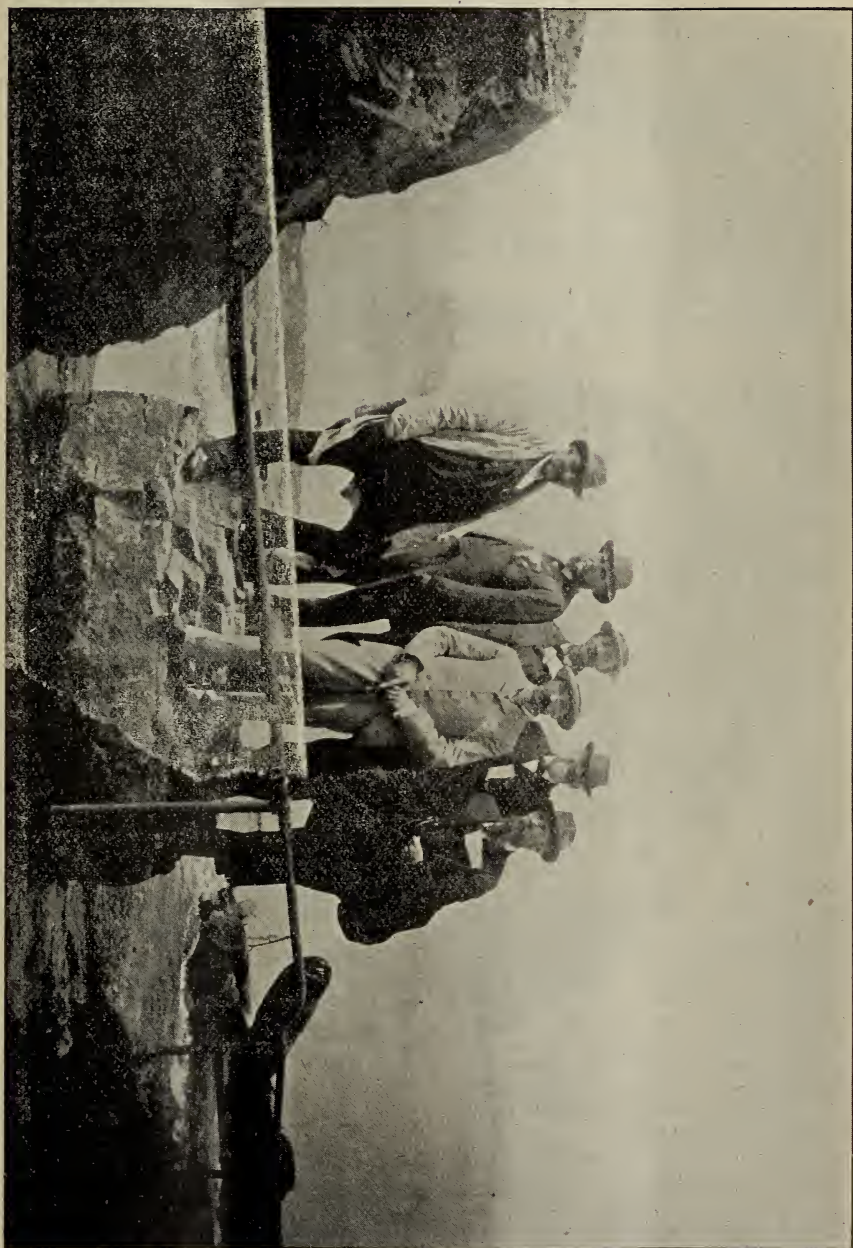
The report that I refer to appears in the *American Bee Journal*, page 677, and is as follows:—ED.]

Noticing that sections which have been covered with paraffine paper were said to be perfectly free from propolis, and even took prizes at various fairs, I procured a number of sheets and applied them according to directions. During the early part of the season the results were pretty fair, though the sections were far from being free of propolis, even on the top edges. Still, the tops between the edges were perfectly fresh and bright when the sections were removed, forming a marked contrast to other sections which had been covered with a $\frac{1}{4}$ -inch "layer of air."

Later in the season the bees plastered propolis just as freely at the junction of the paper with the section edges as they did anywhere else. I conclude that it was the combination of paraffine paper with some other things that produced that prize honey, and that those other things were far more important. I have before this produced section honey without the aid of paraffine paper, which went into the case untouched by the knife. They were built during the first of the flow by new swarms, in brand-new hives, in supers which perfectly compressed both edges and ends of the sections, and over a honey-board.

Another objection to the paraffine paper is the fussiness it requires, with the extra paper and thin boards (I use old separators), and the difficulty of removing in the last half of the season. Every time a super replaces another, there is a lot of red tape, so to speak, to go through with. First, the newspapers and thin boards must be carefully removed and laid aside; then, still more carefully, the paraffine paper—snip, snap, tear (confound it)—wsh-sh-sh-crack! (darn these things, anyhow!) and then it is laid on the lower super reversed, first smoking the bees out of the way, except some refractory ones that have to be cow-catched out of the way with the edge of the paper; then, if the wind is blowing ever so little (it usually is, just then), held there while the other paraphernalia are reached for and spread on in succession; and you have the satisfaction of knowing that you have fixed up one super in good shape in the time that it would ordinarily take to fix two. I've had enough of it. I believe a fresh surface of burlap over every super full of sections, with three or four thicknesses, not necessarily unsoiled, above that, to keep it flat and conserve heat, would amount to about the same thing, and be much quicker handled.

By the way, I am coming to think honey-boards are a valuable aid in producing first-class comb honey. I was obliged to do without them this summer, and the percentage of fancy honey was rather small, in spite of the fact that half the hives had thick top-bars. The editor of GLEANINGS, speaking of thick top-bars and burr-combs, says the exception proves the rule. I would rather do without



BEE-KEEPERS TAKING IN NIAGARA FALLS.

the exception, in this case, because, besides *entirely* preventing burr-combs under the sections, the honey-boards very largely diminish travel-stain on the section honey, better, I think, than thick top-bars do. I am not sure of this, having been too busy to observe accurately, but that is my general impression.



WEED DRAWN FOUNDATION.

Question.—I noticed last spring that you would try the deep-cell foundation. How did it prove with you? Do you think it will be of any help toward the retarding of swarming? If we could only work for comb honey, and not be bothered with swarms, how nice it would be!

Answer.—I received two lots of the deep-cell foundation—one made of white wax, the latter part of the winter, and one of yellow wax, this latter reaching me about the 10th of July. The latter appeared to be nearly perfect, but, like all other samples which I received, it had what is known as the "flat base" to the cells. It was carefully fitted into sections, and put on the hives, a few sections to the hive, alternated with comb foundation of the Falconer make, just before basswood opened, so as to give it the best possible test, as basswood is our main honey-flower in this locality. But during a period of three weeks, in which it rained every day, our honey crop came near being a failure; and the result was, that very few of the sections having this drawn foundation in them were finished fit for market. I put the date of giving the sections to the bees on each section, and at the end of three days took out some sections containing this deep foundation and that of the Falconers' make. At the end of six days I took out more of each, and a careful comparison of each shows that the difference in appearance at the end of three days was not enough so that it can be detected, while at six days the difference is in favor of the foundation, the best specimens from foundation showing a weight of three-fourths of an ounce more of honey stored therein than was stored in the best specimens of the drawn foundation, while many more of the sections with the ordinary foundation were completed than of those containing the drawn foundation. This was very much against my expectations, for I had great hopes that this deep-cell-walled foundation was to be a boon to bee-keepers, if it could be made at a price to come within the reach of the average practical apiarist. When I found that disappointment was the record made, after a very careful trial, I began to look to see what was the trouble that the "thing did not pan out" as I had expected. I was not long in discovering that the trouble was in the flat base. I had used much ordinary foundation having the flat base, both of the Van

Deusen and other makes; but with such foundation the bees always changed the flat base to that of natural comb, both with thin foundation and that made for the brood-frames, so that, after the same was filled with honey or brood, little difference between the base of what was once flat-bottomed foundation and that which had the natural base, could be seen. But when the high cell-walls were put on this flat base, it placed the bees where it was impossible for them to manipulate the base so as to change it from the flat to the natural shape, and their efforts in this direction caused them to be longer in perfecting section honey from this new deep-cell-walled foundation than where the ordinary was used. It also caused them to complete some sections on one side, while the other side remained almost untouched.

On cutting through the honey of sections which had been completed, and on looking into the cells of those not completed, it was easily seen that, in their efforts to change the base to the cells, the bees had put wax all around in the sharp angles at the base of the cells—so much so that, in many instances, the bottoms had a rounded appearance. Not only did I find this, but in a few instances it was evident that propolis had been used instead of wax, while the whole base in much of the unused part was varnished over with propolis till it was glossy, almost equal to varnish. This thickening of the base made the resistance in cutting the combs of section honey much greater than was that of the foundation, after completion, which every one admitted whom I asked to try the matter. Then when it came to eating the two, there was a half more of accumulated wax in the mouth from the drawn foundation than from the same-sized piece built from foundation. To show the real difference in the two I tried the resistance at the end of No. 16 wire, and found, with an average, from a five-trial test with each, that the resistance from the samples sent in the winter was $10\frac{1}{2}$ ounces; from that sent in the summer (made from yellow wax) it was $8\frac{1}{4}$ ounces, while from that built from foundation it was only $5\frac{3}{4}$ ounces. In each of these trials, well-filled sections were taken, which were nicely capped over, or in marketable shape.

As has been spoken of in GLEANINGS, I have no doubt that the poor season had very much to do with the matter; and had the season been an extra good one the bees would have rushed honey into the cells without stopping to add the extra wax in the corners. But it will be remembered that much of the help to bee-keepers would come, by way of drawn comb, in a poor season, thereby enabling us to get something of a crop of honey, as we do with partly filled sections left over from the previous season, could drawn comb be as readily accepted by the bees as are these partly filled sections. Then if swarming is to be retarded, as our questioner hints at, the bees must not be averse to accepting what we give them, but, on the contrary, be only too eager to work on the same, thereby forgetting their desire to swarm.

I think, however, that, with all its faults, this deep-cell-wall foundation will be a boon to those who use bottom-starters, for in that case only two rows of cells will be needed; and with the experiments I have made along this line I find it keeps its place perfectly, while the bees are enabled to manipulate the first row of cells the same as they do ordinary flat-bottom foundation. I am told that Mr. Weed thinks he can yet arrange so as to make this drawn foundation with the natural base; and if so I shall look forward with eagerness till I am able to give such a production a careful test during the season of 1898.



DRAWN FOUNDATION NO ADVANTAGE OVER COMMON FOUNDATION.

I have just taken off the super containing drawn foundation. I will send you an average specimen of drawn foundation and common Weed-process foundation. The honey-flow nearly stopped in about five or six days after putting the super on. The super was filled with newly extracted unfinished sections except two of drawn foundation and two of common foundation, both having the same advantage by being placed near the center of the super. Three days after putting on, they were examined. At that time the drawn foundation was not touched, except to fasten it a little to one side. Contrary to my expectation, the common foundation was drawn out to nearly equal the drawn foundation.

Now, on taking the super off I find the only advantage the drawn foundation has over the other is in being so nicely fastened at top and sides. As usual in a poor honey-flow, the common foundation was not well fastened to the sides, while the drawn foundation did not even have a hole at the corners for a bee to get through.

However, this is no fair test. A man should have a whole summer to give an intelligent answer. I do not think the fear that you will have a cud of wax to chew after eating honey from drawn foundation is where the trouble will be. I think that to be able to make it cheap enough so the common bee-keeper can afford to use it will be the trouble, besides the difficulty of shipping. H. S. WHEELER.

Mt. Pleasant, Mich., Sept. 3.

[See article by G. M. Doolittle in this issue. We have had so far quite a number of flattering reports in regard to the new drawn foundation. Note, for example; those just following this; but as there are, undoubtedly, instances where bees do thicken the base, we, The A. I. Root Co., through Mr. Weed, will very likely abandon the flat base and make in its stead deep-cell foundation with *natural* bases. While the walls will not be so deep

nor perhaps as delicate, the bases will be as thin as or thinner than those of the natural.

We have completed a set of dies on a very small scale that give us strong hope that the new product will secure to us all the advantages that we hoped to obtain from the use of drawn foundation with flat bases.

Strange as it may seem, the dies for making the natural bases are very much more easy to make; and the only wonder is that we didn't "tumble" to the fact sooner. We shall hope to have a set of dies now on a sufficiently large scale by next year so that we can give all our friends all the drawn or deep-cell foundation they want, with *natural* bases. If flat-base drawn foundation has in a *majority* of instances given good results, we may confidently expect that the same article with *natural* bases will invariably do so. Even if the flat bases always gave satisfactory results, we should *now* prefer to use the natural, *because* it will cost less.—ED.]

DEEP CELL, A GREAT SUCCESS.

I have tested your drawn foundation in my apiary, and the result was so satisfactory that I will use it next year instead of foundation if you can furnish it at a reasonable price. Please advise me at what price you can furnish me 25 or 30 lbs. Of course, I shall not need it before next April, as our honey season will not commence before then.

W. O. HEBISEN.

Emory, Texas, Oct. 6, 1897.

FIRST PRIZE FOR DEEP-CELL FOUNDATION.

You will be pleased to read that the deep-cell foundation took first prize for the best and most practical new invention for the bee-keeper. You know Toronto still holds the palm for having the best and largest exhibit of apianian products on the continent. The award will, I believe, prove to be a judicious one. R. F. HOLTERMANN.

Toronto, Sept. 3.

[As we have found instances where the deep-cell foundation has too thick a midrib, we propose to make it with natural bases. I don't suppose honey from the latter will look any better than that with flat bases, which took the prize.—ED.]

DRAWN AND COMMON FOUNDATION FINISHED ABOUT THE SAME TIME.

We ship to you to-day a crate of honey. The 4 cases on top are the honey out of the supers you sent. You sent the supers too late for the willow-herb, so they are filled with goldenrod and wild daisy and boneset. The foundation in the full-drawn had nearly all fallen down, so it did not have a fair chance. If you had sent the foundation and let me set it, it would have had a better show. The bees went into the full-drawn first, but finished both about the same time. It was not a fair test. I should like to give it another trial next summer if you wish me to do so.

L. E. POWERS.

Thompsonville, Mich., Sept. 20.

ARTIFICIAL WAX SCALES TO ASSIST THE BEES IN COMB-BUILDING.

I have for some time wished to hear of your Mr. Weed, of foundation-fame, making a machine that would make wax scales—just such scales as the young bees make. I hope to live to see the day when the bees will be supplied with wax scales so that the colony can pick up the wax from a shallow box which will be placed in the bottom of the hive, and carry it to the surplus-boxes, and finish out the drawn-comb foundation, or use the wax scales to finish out the brood comb. A late writer questioned the propriety of purchasing foundation, as the bees made all the wax which would be necessary, and at a trifling expense in the way of honey. I was called to help a neighbor with his bees, and I took off for him the honey from two hives; the amount was 50 lbs.—30 from his best colony and 20 from the other—not one pound of which was in shape to sell. He did not use foundation. I suppose it was too expensive for him to use; but the loss of the sale on 50 lbs. of honey was also expensive.

I use foundation, and my best colonies so far have given 85 lbs., and are still bringing in honey, as the weather is very fine. I sold some honey at 12½ cts., and have had a fine home trade. WM. H. EAGERTY.

Cuba, Kan.

[I have referred your letter to Mr. Weed, and he says the best and cheapest way to give wax to bees is to give it to them in the form of foundation. A year or so ago, when Mr. Weed was making experiments in bleaching wax, he left some long strips of foundation out on the grass in our apiary. During the time when honey was not coming in, the bees carried in a good portion of it, in little bits at a time. Bees gather wax in dull seasons, not particularly because they need it, but because they have nothing else to do.

Even if we could make small artificial scales, I rather question whether they would be utilized, especially so where the real article itself is being secreted in sufficient quantities in the natural way.—ED.]

BEES DISAPPEARING IN CALIFORNIA; THE CAUSES.

To-day I read on pages 369 and 372, May 1, 1894, about a controversy you had with an Ontario bee-keeper—McFatric—about bee-paralysis. It struck me then that I should report to you about a new trouble that is threatening bee-keepers here. I found in the bee-yard in the mountains that bees would not breed up as strong as I wanted them to do; in fact, some colonies would dwindle down in spite of having ample brood to justify a strong colony. I laid the blame to a large flume which passes near the apiary, and in which the irrigation water runs down at a terrible rate. I saw, several times, bees swept along that went there for water; but since then I learned that nearly all bee-keepers in that locality complained about losing bees at a terrible rate without being able to account for it; i. e., not finding any dead bees in front of the

hives, as in bee-paralysis; also of losing queens more than in any previous year. I notice many bees coming home with ragged wings, as if they had to battle with strong winds. Upon closer investigation this state of affairs seems to exist only in a small district of Ettiwanda. Bee-keepers of Ontario do not complain, and have good to fair crops of honey, while at Ettiwanda the crop is from small to middling, although the locality seems to be A No. 1, showing hundreds of acres of white sage and other honey-plants.

I have made trips along the mountains away into San Diego Co., and visited many bee-keepers, and have not come across any similar case. M. R. KUEHNE.

Ontario, Cal., Aug. 28.

DO BEES DISTINGUISH COLORS? AN INTER- ESTING INCIDENT.

I want to report a little experience which may be of interest to those of your readers who contemplate building house-aparies. I have built one and painted it after Salisbury's advice. Starting at the south end it is 6 feet red, then 6 feet white, then 6 feet black, then 6 feet yellow, which brings us to the center of the building; then the rotation is repeated until the other end is reached. Bees were then put into the north half, three colonies in each color. When they began to fly I noticed a few returning to the entrances in the south half, but particularly to the white part. As the bees in the north half began to increase in strength the bees returning to the vacant south half began to increase. This morning we had a light shower, which drove the bees home in great numbers, and the entrances to the white sections in the south half were covered with pollen-laden bees hovering round in a lost condition; while some returned to the other shades in the vacant half, the number was not so great as to the white. Does it not appear that, instead of bees not being able to distinguish colors, it is such a conspicuous and all-sufficient landmark that they neglect all other bearings—and particularly a clean white, which is very conspicuous, even at a great distance? As I look out of the window I can see hundreds of bees hovering around those vacant entrances. It looks as if I should have to paint them over again, so that no two shades be alike. I might say further that it is 24 ft. from one section of white to the other, and one is near the end of the building, and the other near the center.

A. E. TRUSSLER.

Trout Creek, Ont., Can., Sept. 6.

SMOKER FUEL; CORN-HUSKS, ETC.

In GLEANINGS for Aug. 15, page 603, I read about smoker fuel. I have had many troubles with fuel, and have tried every thing recommended, almost as persistently as many people do for a cold, and with more or less the same results. The best thing for fuel is corn-husks, used as follows: Start your smoker with wood. I use elm and maple that is about decayed. It holds fire best; then have your wood well fired, two or three pieces, in

size from $\frac{1}{2}$ to 1 inch square, 2 inches long; then put in some husks; blow up a little to start the fire on them, then fill up the smoker, packing them down tight with your thumbs and fingers, or a stick if thumbs and fingers are not handy. Blow up a little, or you may smother out the fire, and you will have a smoke that will be pleasant to look at. It is mild, does not make a hot fire; no sparks or ashes if you keep the smoker filled up occasionally, and packed down tight, after the first fire is partly burned. If husks are a little damp they make a greater smoke. Give this fuel a good and fair trial, and I am certain you will like it.

HOW TO KEEP ROBBERS FROM THE CRACKS OF HIVES.

I think it was some of our sister bee-keepers who suggested the use of a little fresh paint along cracks in hives where robbers were around trying to break one of the commandments. A few drops of coal oil squirted along and into the cracks will make them stop their humming around there, and will not daub or mar the looks of the hive. I have usually used a bunch of wet grass at the entrance of a hive robbers were trying to clean out, but not always with success. Just sprinkle a little coal oil on the grass, and observe the results. JOHN CRAYCRAFT.

Astor Park, Fla., Sept. 6.

THAT YELLOW IMPORTED ITALIAN QUEEN; YELLOW FEVER INTERFERING WITH THE SOUTHERN QUEEN-TRADE.

The imported queen mailed us Sept. 20th arrived the 25th in excellent condition. The queen and every bee were as lively as could be. The queen is safely introduced, and is laying. By the way, this is the yellowest imported queen we have ever bought, and we are truly proud of her.

On account of the yellow fever, all trains stopped running here the 16th, the very day we wrote you with instructions to mail the queen the 20th. We had given the queen up as lost, but luckily we had one mail train the 24th, and one the 25th, and the queen came through. All mail matter has to be fumigated here, and we don't know how the queen escaped. Every thing is at a standstill here now, and we shall have to give up the queen business for the rest of the season.

CLEVELAND BROTHERS.

Stamper, Miss., Oct. 1.

THE NEBRASKA STATE FAIR; HOW ALFALFA CARRIED OFF THE FIRST PREMIUM.

Bro. Root.—I am just home from the State fair, in which the fellows from the alfalfa district, in the extreme western portion of the State, lugged off the premium for the largest amount of honey stored by one colony—186 pounds of comb honey. This is no supposition, but verified under oath of Mr. C. M. Lueling, of Beaver City, Neb. Here comes a lot of bee-keepers from a district where, but a year or two ago, we thought honey could not be produced profitably. The Nebraska State

fair was a very successful one indeed, and Nebraska bee-keepers are making arrangements to put up a fine honey exhibit at the Trans-Mississippi next year, and we earnestly hope that other States will fall into line, and let us see what can be shown in honey, etc.

E. WHITCOMB.

Friend, Nebraska, Sept. 27.

HONEY-CAKE RECIPES TESTED.

I just discovered your request on page 647 for tried honey-cake recipes to put in your leaflets. The one I sent you, that you will find on page 375, May 15, has been used in my family for 100 years, I think. When they took up the bees in the fall my grandmother used to make up a year's supply of the cake, so my mother tells me. The cake is not at its best until it is three or four months old.

The recipe on page 407, June 1, is first rate. We have tried it. It is good for immediate use, but improves with age, like most cakes in which honey is used. E. D. HOWELL.

New Hampton, N. Y., Sept. 27.

LOCALITY GOVERNING TASTE.

Replying to Dr. Miller's Straw and your corroboration in regard to locality ruling taste, it seems to me the assertion is altogether too broad, for surely locality does not govern taste any more than it does quality. I find in shipping honey some prefer white and some dark in the same locality; and among my home customers the difference is more noticeable. Some prefer basswood, some clover, some buckwheat, and some others fall flowers, and some even the darkest and rankest-flavored honey-dew (when I have it); some say, "I can't bear the white honey at all," and they will take the darkest grades in preference, even at the same price. This reminds me that one time I attended the bee-keepers' convention at Madison, Wis. When the question of propolizing the hive came up, a learned gentleman argued that it was governed by locality. My argument was that the difference was in the different bees, that in my own yard some hives were literally plastered with propolis, while others of the same make were almost entirely free from it. Then this man arose and said it was no such thing—that *locality* governed wholly. Of course, he was away up in "G" in bee culture, so his theory was accepted by the convention as conclusive. As to which was correct, many of you can judge from personal experience.

Hillsboro, Wis.

ELIAS FOX.

LOCATION FOR BEES WANTED.

Will some of the bee-keepers who live between Washington, D. C., and Charleston, S. C., give the best location for bees, and what they gather from, say from the coast back one hundred miles? This is a favored strip of country in climate, but I never see any reports about bees.

EAST COAST.

[Will some one or more in the locality please reply?—ED.]

SWARMING A SWARM OF BEES.

I do not know any other word to express better what I mean than the one I use. I had a colony of bees that persisted in swarming, and I did not want them to; so, about every eight or ten days I would cut out all the queen-cells, but still they sulked and hung out in front of the hive, and built queen-cells.

They had plenty of room and ventilation inside, but still they seemed bound to swarm.

After cutting out the queen-cells four times I was looking at a great bunch of bees hanging out in front of the hive. I thought I would swarm them. I got a small branch of a tree and fastened it firmly in the ground, opened the hive, caught the queen, and placed her in a mailing-cage with a few attendants, and fastened the cage to a twig of the branch. I closed the entrance of the hive, removed the frames, placing a piece of canvas near the branch.

I brushed the bees all off the frames, putting them in an upper story; I also cleaned the hive all out. The bees clustered around the cage containing the queen, just like a natural swarm. I placed the frames back into the hive and prepared it as it was before I began my experiment. I let the bees stay clustered for one hour, then I opened the entrance of the hive, shook the bees in front, let a little honey daub the queen so she could not fly, and she ran in with the rest of the bees. Now for the results of the experiment.

The bees went to work at once, and have worked ever since, and have not hung out one particle. I would say, however, I changed the location of the hive, otherwise it was just the same.

Now, the question arises in my mind, "Is the clustering out of the hive for an hour what satisfied the natural propensity to swarm, or was it the fact that I moved the bees to another location?"

I do not remember of either reading or hearing of any one doing this way before to stop swarming. I have tried it twice this season, with good results. GEO. L. VINAL.

Charlton City, Mass.

FOR LARGE HIVES; DEEP ENTRANCES.

There was a good deal said last year by writers in GLEANINGS and the *A. B. J.* about large hives; and those eminent bee-masters, the Dadants, claimed that the large hives were just the thing for us bee-keepers to use. I had been using a ten-frame hive whose frame measured $8\frac{7}{8} \times 14\frac{1}{4}$, inside measure. My bees that I purchased of G. M. Doolittle gave me 84 lbs. of comb honey last year in the afore-said ten-frame hive. Thinking to try the large hive I made a hive whose frame measures $10\frac{3}{8} \times 19\frac{1}{2}$, and transferred a swarm of the Doolittle bees, with their 9 combs taken out of Gallup frames, into the large frames I have mentioned. The bees filled out the large frames and loaded them with honey, and gave me 84 lbs. of surplus honey besides. My bees are all of the Doolittle stock; and while I have colonies in the smaller hive that gave the same amount of surplus, they did not

have to build so much brood comb. I believe the Dadants are perfectly right in their claim that the more work you set for the queen to do, the more she will do.

It was a real pleasure to see the bees come out of the large hive when honey was plentiful in the fields. The flow of honey came late, and did not last very long this year; and I tell you those large colonies did hustle to get the honey crop secured, and they got it too. I am very well pleased with the work done by the honest little workers. I was afraid at one time that I should not get any surplus this year; but I am happily disappointed.

On page 661, Sept. 15, you say, in your remarks on Mr. Gill's letter, "We expect to make our hives next year so that the entrances will be an inch deep and the full width of the hive," etc. The entrances to my hives are $\frac{7}{8} \times 14\frac{1}{8}$, or full width of the hive. Now, what I want to call your attention to is that your customers, in using your hives, will often want to almost close the entrance; and the best way to do so is to saw out sticks that will just fill the aperture. Most of the lumber to be had throughout the country is $\frac{3}{4}$ instead of $\frac{7}{8}$, and you should make the entrance $\frac{13}{16}$, $\frac{1}{2}$, or $\frac{7}{8}$, so that, by a little planing, $\frac{7}{8}$, $\frac{3}{4}$, or $\frac{1}{2}$ inch lumber will fill the entrance. Such blocks or sticks are far better than loose ones. I use two sticks, leaving the opening in the center of three or four inches in cool weather, and no blocks in summer time.

Cuba, Kan.

WM. H. EAGERTY.

THE IMPORTANCE OF SHADE FOR BEES.

In looking at pictures in the *A B C* book and GLEANINGS and other journals, my attention has often been drawn to the fact that so many apiaries seem to be exposed to the direct rays of the sun; and in arranging our little apiary, shade was a matter of secondary consideration with me; but as the care and work with them began to increase we found shade a great benefactor. Yesterday, as I took a little stroll through our apiary, one colony exposed to the sun, without any shade whatever, attracted my attention by so many bees swarming in front of it and settling on all sides of it; but as I approached a little closer I found the bees considerably out of humor about something; and, having no veil on, they gave me to understand that I was on forbidden ground, and made me quicken my steps out of there. When my wife (who is the real bee-keeper) came home from the fair I related the strange behavior of that one colony, and she at once put on a veil and proceeded to investigate the matter, and found honey leaking out in front of the hive. Upon further investigation we found that not only had the three cases containing eighteen sections (nearly filled and capped) melted down, but every one of the ten frames in the lower part of the hive, filled with brood and honey, melted down into one mass, and every bee was drowned in its own sweet.

P. A. PETERSON.

Boswell, Ind., Sept. 9, 1897.



J. H. J., Pa.—There is no way that you could remove the colony from the oak-tree of which you speak, if the bees are in the body of the tree, except by cutting it down. If they are in a limb of the tree, you can climb it and cut the limb off; but before it is severed entirely from the tree you had better fasten a rope to it and let it down gradually, otherwise you will smash the combs and greatly enrage the bees. After the limb is down, saw both ends around the bees, and carry home just that portion which contains the colony itself. You can then transfer them at your leisure.

R. A. L., Va.—We should be inclined to believe that the colony you refer to has something that it recognizes as a queen. It may be a virgin queen that is very small—little if any larger than a worker. This would account for all the phenomena you refer to. If the hive were ours we would put perforated zinc before the entrance, and shake every bee out in front of the hive, and compel them to crawl in again; then watch closely for something that can not go through the perforated zinc. Virgin queens will sometimes go through the perforated zinc, but such cases are very rare.

[Just before the above went to press we had a letter from R. A. L., stating that he found a virgin queen by the use of perforated zinc, as above explained, and now his troubles are ended. He had previously thought the colony queenless, and had tried to introduce laying queens, but without success.—ED.]

W. C., N. Y.—Yours not dated is at hand. We do not remember the article to which you refer, which you say you sent us some years ago, and which we did not publish. You may rest assured it was not because there might have been some things in it with which we did not agree. In almost every issue of our journal we publish some things that are not in accordance with our methods of working; but we are glad to give place to them, because not all people can be induced to work by the same methods, nor to see the same thing in the same light.

Referring to the article which you have just sent in, you tell us of the good results you have secured by your method of wintering, but you do not tell what it is. The article as it is would be of no use to us.

Again, you speak of the great loss of bees throughout the country. I think you must be misinformed. The progressive, practical bee-keepers of the day suffer very little loss comparatively. We have lost scarcely two per cent in the last fifteen years, and among the modern progressive bee-keepers we would venture to say that the loss does not exceed five per cent on an average. If you care to submit your method of wintering, and in our judgment it seems to have merit, we shall be

glad to publish it in our journal. If we could see it we might possibly then discover that it is the same that many of us have been using for a good many years.

Now, I hope you will not think we are trying to cast discredit upon your idea—far from that. It is possible that you have a valuable invention, and that it might be worth much to yourself as well as to your brother bee-keepers.

TREATING FOUL BROOD LATE IN THE FALL.

B. T. C., Maine.—We would not advise you to burn any of your hives. In the case of the chaff hives, knock out the bottom that holds the chaff, pull out the chaff, and burn it. After you have the whole lot thus “unchaffed” immerse each one in a vat of boiling water, and keep it there at least forty seconds—a minute would be better. It is possible you may not be able to find such a vat; but I think if you were to load your hives up and take them to some cheese-factory you could be accommodated.

Another way to disinfect (and it may be just as good, and it is a good deal cheaper) is to paint the inside of the hives with kerosene, set fire to it with the cover off, and let the inside of the hive blaze until it is charred just enough to show that fire has been inside the hive. To arrest the further progress of the burning, throw in about two tablespoonfuls of water, clap the cover on, and the steam which will immediately form will smother the fire. This plan was recommended by J. A. Green, and I believe by him was found to be entirely successful. The only objection to it is that it leaves the hives blackened inside; but this does no harm, and it shows unmistakably that the hive has been disinfected. When the hives have been burned out inside, of course it is not necessary to remove the chaff.

In the case of single-walled hives I would by all means recommend immersing them in a kettle of boiling water, covers and bottom-boards and every thing, including smoker, honey-knives, and other tools. The honey-knives especially should be boiled thoroughly.

Now as to the treatment of the bees: It is so late (Oct. 5) that it is a question whether it would be worth while to try to save them. I would not advise you to destroy them, but shake them on to frames of foundation; and after they have starved long enough to be weak, dump about three lots of them into each hive, and then begin feeding. It may be necessary for you to do some returning from the old stands; but if the old hives are removed entirely, the bees will be sure to find the entrances of hives that contain bees; and as they will be so thoroughly mixed up, there will be no fighting. If you have forty colonies that must be treated, then you will have a dozen or fifteen, each of which will contain what was left of three colonies. By proceeding on this plan I think you will save the bees.

The honey you can extract and boil, as you suggest; but the combs and frames should be burned. It is useless to try to melt out the wax or to try to disinfect the frames. It can be done, but it does not pay.



BUCKWHEAT HONEY; CLAMS, LOBSTERS, ETC.

IN some families in York State it was something of a surprise to me that they should prefer buckwheat honey to the best clover, mountain sage, or alfalfa honey ever produced. Some of them, if they wish to treat you to their very best honey, will give you buckwheat. I suppose it is one of those kinds of honeys that we have to learn to like, just as we have to learn to like olives, oysters, clams, and lobsters. I tried to learn to like clams on my recent eastern trip, and I tried to learn to like buckwheat honey, but I failed signally with both. We are all glad, however, that there is a very large class of people who think buckwheat is the very best honey in the world; and were it not for this particular liking, many of the York-Staters would not be keeping bees as they now are.

WHITE HONEY FROM CUBA.

MR. FRED L. CRAYCRAFT, formerly of Cuba, but now of Astor Park, Fla., of whom mention was made in our last issue by our Mr. A. I. Root, has sent us up a sample of campanilla honey. When he was here in Medina he stated that Cuba produced large quantities of white honey, and their best was campanilla. It is of good body, almost as light in color as California sage, and quite the equal of it in flavor. In fact, it would compare very favorably with any light honey in the world. I do not know how much our Cuban friend has of such honey for sale, or how much he is expecting to have, owing to the war that is now unfortunately devastating that island. But there ought to be a good demand for it in the London markets, and I bespeak for it a good sale when peace shall have been restored in that beautiful island now desolate by the cruel hand of war.

FOOD ADULTERATION.

THE Department of Agriculture, Washington, D. C., through Mr. A. J. Wedderburn, is now making special effort to investigate the extent and character of food adulteration, and is desirous of securing all the information on the subject possible. Among other questions asked were: "Would a national food and drug law assist in preventing adulteration?" Also, "What is your opinion as to the extent of damage done to legitimate business by the imitation of brands?" And again, "Have State laws assisted in preventing adulteration, and to what extent?" Prompt replies are called for. We have already written, giving our opinion of the evil done to the honey business by the use of glucose, and saying that a national law is exactly what we need. We hope our subscribers will take the pains to write to Mr. Wedderburn, at Washington, D. C., care of Department of Agriculture, Divi-

sion of Chemistry, and let him feel that we are suffering from the glucose business, and that we need relief. Please do not put this off, but give it your immediate attention.

SWEET CLOVER—THE WHITE AND THE YELLOW; DIFFERENCES BETWEEN THE TWO.

I BELIEVE it has been stated in our columns that white sweet clover and yellow sweet clover were exactly alike except in the matter of color of the blossoms. Mr. E. T. Abbott, of the *Busy Bee*, and myself were sitting in the same seat in an electric car that was making its way to Niagara Falls, when suddenly he pointed to the roadside. All along the way there seemed to be literally miles of yellow sweet clover skirting the track. Mile after mile there was nothing but the yellow, and then occasionally there would be patches of the ordinary white sweet clover, and then it would change to yellow. Mr. Abbott called my attention to the fact that the yellow was a smaller plant. While the white at a short distance was from four to six feet high, the yellow was scarcely ever over two feet. The remarkable thing seemed to be that there was no white mixed in with the yellow. It was either one thing or the other.

I saw yellow sweet clover in only a very few places in York State. I have never seen it in Ohio or anywhere else. Whether the bees will work as well upon one as upon the other, I can not say. We were spinning along at such a rapid rate on the street-car that I had no opportunity for investigation, even if bees had been on the blossoms.

APIARIES IN SHEDS; GOING TO PICNICS.

THE editor of the *Amer. Bee Journal*, as well as your humble servant, has been out attending bee-keepers' picnics. At all events, Mr. York, with his office force, attended what was styled the "Honey Harvest" at the apiary of Mr. L. Kreutzinger, Aug. 21, 1897. Mr. K. had sent out nearly 200 invitations to his friends, and a picture of the company (for it would seem as if his friends all came) appears on the first page of the *Amer. Bee Journal*. On another page of the same periodical is a half-tone view of the apiary. This is said to be the largest one in Cook Co., Ill. The hives, instead of being on the ground, are placed under sheds facing each other in such a way as to shut off the wind and yet let in a flood of sunshine. From the looks of the picture it would seem as if the hives are handled from the rear. That being the case, the apiarist is in the shade. If his back aches in handling those hives near the ground on the first shelf, all he has to do is to straighten up and commence manipulating the hives on the upper shelf—about breast-high, I should judge.

In my eastern trip among bee-keepers I saw only one apiary the hives of which were in sheds, and that was at Mr. House's, at Marcellus, N. Y. This Mr. House (I have forgotten his initials) is a brother of Geo. W. House who a few years ago was connected with the *Amer. Apiculturist*. These sheds were arranged at the base of two hills facing each

other, and all over the hills was a heavy growth of timber. The place seemed to be an ideal one for an apiary, and "as pretty as a picture." I snapped my Kodak, but it was so late in the day I failed to get the pretty picture I expected.

THE HONEY EXHIBIT AT THE MARYLAND AGRICULTURAL COLLEGE.

FROM a private letter from Mr. Charles H. Lake, who had charge of the honey exhibit at the recent Maryland Agricultural Fair, we make the following extract:

The college exhibit of bees and honey was the drawing card, and was attended by at least two-thirds of the visitors, 33,000 in number. I refer you further to a clipping from the Baltimore *Sun*. It was one of the most successful exhibits of my life, and many congratulations were showered upon me.

From the clipping in question we make the following extracts:

In a large tent erected to the northeast of the household-department building is the interesting exhibit of the Maryland Agricultural College, which is confined almost exclusively to bees and honey. There are to be seen eight hives of bees, occupied in storing honey in the comb. There is also a large pyramid of honey weighing 250 pounds, representing the product of one swarm for a year. Besides this there are two specimens of white-clover honey. One is pronounced by an expert on bees and honey to be superior in quality to any exhibited at the Columbian exposition in Chicago, and the other is a very unique and valuable specimen, found in the roof of a hive on taking away the honey.

A small pyramid shows fancy designs in honey and bottles filled with extracted honey made from several varieties of flowers. There are seventeen varieties of these, and they retain characteristic flavors and color of the plants from which they are derived. This exhibit is in charge of the college apiarist, Mr. Chas. H. Lake, who has been engaged in bee culture for forty-seven years.

BEE-KEEPERS AT NIAGARA FALLS.

AFTER the Buffalo convention the bee-keepers went to Niagara Falls in little squads. The party that I happened to fall in with was Messrs. D. N. Ritchie, P. H. Elwood, E. A. Wander, E. T. Abbott, and two others whose names I have forgotten. It was arranged that we were to meet Messrs. York, Miller, and a number of other bee-keepers, on Goat Island; but somehow we "missed connections." Of course, I took along my Kodak, intending to secure a snap shot of a number of the leading lights in apiculture, with the beautiful Niagara Falls as a background. Having failed to meet the other "crowd" I gathered our company into groups at several different picturesque points, and "pressed the button." In another column I have reproduced a "shot" of the gentlemen just as I hit them standing upon a rock, with the Horseshoe Falls for a background. The fog, or mist, arising from the falls almost obscures the famous horseshoe. The wind was blowing quite hard, and it will be noted that every man in that crowd was obliged to cram his hat down level with his ears, or stand a good chance of losing that important piece of wearing apparel — just as I did, in fact, a few years ago, lose mine upon almost the same spot.

Well, to return. Our crowd took in the Falls generally, ate dinner on the Canada side, just to see how it would seem, you know;

went down the Gorge, passed the Whirlpool Rapids, on to Lewiston. All the way down I took snap shots of the rapids while the car was going at full speed. One lady curiously remarked, as she watched me taking pictures while the car was under full motion, "I don't see how you get a picture when every thing is going." "I catch them," said I, and I did. Another old lady wanted me to let her look into the camera to see how it looked, and whether the picture was good or not. That, of course, I could not do, as the film had to go through a process of chemical manipulations before it came out a picture.

I hope the view of the bee-keepers on the rock will appear better than the picture in our last issue showing some leading bee-keepers at the boarding-house. This picture did not "work up on the press" as I hoped and expected it would. I trust the one I have shown in this issue will come out better. Half-tones are very uncertain, and one can never tell in advance just exactly how they will behave until they get on the press.

W. A. SELSER.

AS Mr. W. A. Selser, of Philadelphia, has of late been creeping rapidly to the front as a leading bee-keeper, queen-breeder, honey-buyer, and supply-dealer, I thought our readers would like to see a picture of the man, more especially as he believes in *paying cash* for honey rather than taking it on commission. He did not have a photo of himself alone, but had one of himself, wife, and baby, and, "would that do?" I told him to send it on, of course; and when I saw it I was glad that he didn't have a picture of himself only. I sometimes think it is selfish to show a picture of one half and not the "other half," for many a man is what he is because of the good wife and God's greatest gifts to the home-children. The cut is shown elsewhere in this issue.

I solicited a few facts for a "write-up" to go with the picture, and here they are:

W. A. Selser was born in 1859, in Philadelphia, in that section of the city then called Northern Liberties; was educated at the public schools, afterward attending the Philadelphia College with the idea of studying for a profession. A year before graduation he was taken sick for six months; then having a good offer of learning the morocco-leather business, he entered the factory of Wm. R. Stewart & Co. In about two years Mr. Stewart failed, and Mr. Selser entered the establishment of Selser & Bro., his uncles, importers of foreign fruits, a business established by his father, who died when the subject of this sketch was but twelve years old. He traveled much for this firm, remaining with them six years, when a chance occurred to take an interest in an old-established morocco-leather firm, starting as Selser, Meurer & Co., and finally merged into the Quaker City Morocco Co., of which he was treasurer, employing 400 hands, and doing a business of three-quarters of a million dollars a year. In 1892, through the heavy defalcation of their trusted buyer of hides, they were compelled to

give up business. Mr. Selser then took a trip to Florida for the old house of his uncles, visiting many of the bee-keepers there. On his return he stopped at Medina, staying over night with The A. I. Root Co. It was a case of "mutual admiration" as he says, and he on his part was so impressed with the supply business that he made arrangements then and there to handle the Root goods in his city.

He became interested in insects while attending school, and afterward gave special attention to the study of zoology, and bees in particular. In 1889 he started an apiary of 15 hives in his garden, for pastime. In 1892 he bought out a large apiary in Chester, and now has one house-apiary and three out-apiaries that he manages himself, aggregating 400 colonies and nuclei, and has control of 17 apiaries in other States. He makes a specialty of extracted honey, and expects to bottle this year over 15 tons.

In 1894, when the pure-food law passed the Pennsylvania Legislature, Mr. S. took a special course in chemistry under Prof. Wallace, to detect the adulteration of honey sold in his market.

Mr. Selser married in 1889; moved to Jenkintown, a suburb of Philadelphia. The cut shows his wife and little girl, Margaretta, four years old. The latter helps him in his business. She dons the veil, holds the frames for her father while he works in the apiary, and is no more afraid of bees than a veteran. Mr. Selser has a sister three years his junior, who has been a great help to him in his business.

The best thing I can say about our friend is that he is an earnest Christian, and so far our business relations with him show that he does as he would be done by.

NOTICE.

To all new subscribers, and also to those who renew before their subscriptions expire, and inclose \$1.00, we will send the *Busy Bee*, a monthly bee-paper, in addition, free.

SECTIONS WITHOUT BEE-SPACES AND CLEATED SEPARATORS; ONE-PIECE AND FOUR-PIECE SECTIONS FOR SCRAPING.

At several of the different yards I visited in York State I noticed that the four-piece sections were still being used in preference to the one-piece, notwithstanding the former cost more and take more time to put together. I never could understand exactly the reason unless it was that there was a time when the one-piece sections that used to be sent out would, when folded, incline toward a diamond form rather than a true square; and this "naughty corner" induced many to use the four-piece section. In the last few years nearly all the manufacturers, I believe, have discovered that it is perfectly easy to make the one-piece assume a true square as well as a diamond form; and latterly I have been noticing that the one-piece was creeping into the territory of the four-piece. But, as I said, several are even now using the four-piece, and this preference seems to be due to the fact that these sections offer facilities for scraping that the one-piece

with the ordinary score cut out for openings does not. It will be remembered that the four-piece section has an opening clear across the top and bottom of the sections, while the one-piece has an opening that is scored out and reaches to within $\frac{1}{2}$ inch of the corner. At one or two places I was shown that the scraping-knife could at one sweep go clear across the top edge of the section, and at one sweep go down the side edges of the section. But in the case of the one-piece the knife had to dip down and out again.

MORTON'S NO-BEE-WAY SECTIONS AND MORTON'S HONEY.

At the apiary of Mr. Miles Morton, Groton, N. Y., to whom I have already referred, I found not only four-piece sections, but sections with practically no openings at all, the bee-space to the sections being effected by cleats on the separators. I said "practically no openings," for the top-bars of the sections were narrower by $\frac{1}{8}$ inch than the side-bar. In other words, there is an opening $\frac{1}{8}$ inch wide between the tops and bottoms of the sections when put close together. Of course, this would not be room enough to let the bees between the sections. Accordingly, separators are used cleated, the cleats being $\frac{1}{8}$ inch thick, and so spaced on the separator that



they come just opposite the upright edges of the sections. The $\frac{1}{8}$ -inch-thick cleat, and the $\frac{1}{8}$ in the sections, make just exactly a bee-space of $\frac{3}{16}$ inch. As these separators are cleated on both sides, the cleats being held in position by glue, the regulation bee-spaces are preserved in the sections while in the supers. But you may ask why Mr. Morton did not have all the bee-space in the sections like those all the rest of us use, instead of $\frac{2}{3}$ of it in the separator. I can answer this question by saying that, if you were to look over his lot of comb honey, you would at once see the reason. The comb surfaces come within $\frac{1}{8}$ inch of a straight edge resting across the sides of the section, and $\frac{1}{8}$ inch from the same straight edge reaching across the tops and bottoms of the section. The consequence is, the section appears to be fuller, and looks, oh so much nicer! When I looked over this lot of honey I said, "Why, you have selected this because it is filled out well."

"No, sir," said Mr. Niver, Morton's "brother-in-law." "It has not been graded at all."

Then I looked over some supers just as they came out of the hive, and pulled out sections here and there at random. They were all alike. Mr. Morton's honey would grade, according to my notion, extra fancy right alongside of ordinary honey placed in sections having a bee-space, that would grade only about No. 1.

CLEATED SEPARATORS EASILY AND INEXPENSIVELY MADE; GLUE INSTEAD OF NAILS.

Perhaps it may occur to some that a cleat-

ed separator, such as I have just described, would involve the use of a great many pieces, and a good deal of work to put them together. For the ordinary $4\frac{1}{4}$ section there would be, in fact, 11 pieces. I must acknowledge that I myself felt that the nailing-up of such a separator would be simply awful—that one would get tired of putting with so many little pieces and so many nails to get one separator. For several years back we have been making cleated separators; and till lately I felt sorry for any one who thought it necessary to use such a clap-trap. After being at Miles Morton's I not only saw the great value of such a separator, but found that the labor of putting it together could be very greatly reduced by using cabinet-makers' glue. Mr. Morton uses a form which spaces the long strips and the short ones just so far apart. The separate pieces are dropped into the form, and those surfaces that are to come in contact are smeared with cabinet-makers' glue, when the strips are laid in their proper positions. As the form is made to take a deep pile, the stuff is piled up, as it were, like cordwood, and very rapidly, too, by any kind of cheap help. After the pile has been made, the tier of separators is lifted out of the form very carefully, set to one side, and a weight placed on top. Of course, in a few hours these separators are ready for use. You may think that the glue would not hold; but Mr. Morton assured me that he never had any of his separators break at the glued joints. In my hands is part of a separator that has been glued together. I have tried to pull the stuff apart with my fingers, and actually have had to give it up. (A later attempt separated the parts, but the wood itself gave way and not the glue.) There is every thing in having good glue. The ordinary prepared article will not be suitable for such a purpose; and, besides, it would be too expensive.

THE PRETTY EFFECT OF THE NO-BEE-WAY SECTIONS FILLED WITH HONEY.

You can get somewhat the effect of the non-bee-way sections filled with honey, but not entirely, if you take a series of your sections that are filled out about equally, and, with a common smoothing-plane, plane the edges of the wood of the section until the bee-space, or scoring-out, almost disappears. Now stand four of such right by the side of those that have not been planed off; then note how much prettier the former look. J. E. Crane, of Vermont, showed me this trick seven years ago.

I was not surprised when Mr. Morton's brother-in-law, Mr. S. A. Niver, told me he could get a higher price every time for Mr. Morton's honey because it looked so plump and nice—much more so than he could ever get for sections having a full bee-space.

Coming home, I found our friend Mr. Francis Danzenbaker, who uses a section, it will be remembered, that has a bee-space on one side, and none on the other. On the table he placed four sections filled with comb honey, with the bee-space side *toward* us; and from the same lot he placed four other sections, exactly like them, also filled with comb honey,

with the no-bee-space side facing us. Any one who could not see that the last four looked several cents better per pound than the first four mentioned must be blind indeed. I said to Mr. Danzenbaker, that "the side of the section having no bee-space on it looked so much nicer, why not go one step further and take the bee-space off the other side as well, and use a double cleated separator?" He was afraid that no-bee-space sections would not crate well in the shipping-case; and he thought, moreover, that such a section looked too lean when looked at from the side.

So far as the crating part of it is concerned, Mr. Morton crates his honey right along without any difficulty, but he always uses a piece of thin veneering between each row of sections. So far as the leanness was concerned, I must say that I could not see that it made any practical difference.

THE ADVANTAGE OF A NO-BEE-WAY SECTION FOR SCRAPING.

Ever since I have been home from the East I have been thinking of the great advantages that would accrue from sections having no bee-space—sections perfectly flat on both sides. They would be cheaper and easier to make, far handsomer when filled with comb honey; and when it comes time to scrape their edges, how much easier to go over them with a scraping-knife! Just picture, for instance, in your mind's eye, a section having a perfectly flat side so far as the wood is concerned, without any bee-space. Now, in your mind's eye also take a common case-knife and clean the propolis off from that whole side of the section, with *one sweep*; no jutting corners nor curved openings to dodge into and out again—absolutely no danger of gouging into the honey. If you can't see that in your mind's eye, take a smoothing-plane, cut off enough wood from a section to obliterate the openings or bee-ways on both sides, top and bottom; then take a case-knife and lay it near one corner and notice how easily you can scrape the whole four sides at one swing of the knife.

THE SAVING IN SHIPPING-CASES.

This is not all. With the no-bee-space section we effect a great saving in shipping-cases. Suppose, for instance, you take a $4\frac{1}{4}$ section, and leave off the bee-ways, and you will find it to be $1\frac{1}{2}$ inches full instead of $1\frac{3}{4}$. If we use double cleated separators, it will hold just as much honey as the $1\frac{3}{4}$ with openings. Well, then we can put in a shipping-case that ordinarily holds 24 one-pound $1\frac{3}{4}$ sections, 32 sections of the same kind without the bee-spaces or bee-ways. The gain to the honey-producer in shipping-cases is just exactly *one-third*. Or, to put it another way, the honey-producer would save one-fourth the cost of the shipping-cases by the adoption of sections with no bee-ways. Besides this great saving, he will have honey that will run at least one grade higher in the market.

HOW THICK TO MAKE THE CLEATS TO CLEATED SEPARATORS.

But, you may ask why Mr. Miles Morton

does not use sections without any bee-space whatever. I do not exactly know, unless he thought that leaving the $\frac{1}{8}$ inch space in the section on one side would allow the sections to crate together better. However that may be, I think the difficulty is entirely obviated by using the thin veneer stuff between the sections. As I will presently show, by a certain adjustment in the *thickness* of cleats on the separators, we can make the faces of the combs as near the edges of the sections as we like. If we make the cleats full $\frac{1}{4}$ inch, then the faces of the combs would be just even with the edge of the sides and tops of the sections; but if we make them $\frac{3}{8}$ inch, or scant that much, then the surface of the comb will retreat from the straight edge across the sides of the sections $\frac{1}{8}$ inch. If we make the cleats only $\frac{1}{8}$ inch thick, then the surface of the comb will retreat back $\frac{1}{8}$ inch from a straight line across the edges of the section. This last thickness, $\frac{1}{8}$ inch, would be the proper thickness of a cleat on the cleated separators; and to secure the necessary bee-space or opening at the bottom, the separator itself should be just enough narrower than the inside height of the section to make the opening $\frac{1}{8}$ inch wide.

NEW-STYLE SECTION ADAPTED TO OLD SURPLUS-ARRANGEMENTS.

Now, about this time I imagine some of you saying, "Look here, E. R. R., are you proposing to foist upon the bee-keeping world an entirely new section, thus compelling us to discard our supply of surplus fixtures in the way of T supers and section-holders?" Not at all. If you will take one of your $1\frac{1}{8}$ -inch sections and plane off the bee-way as I have described, you will see that you can use them in your hive-crates just as you did your old ones. The T super itself would be very nicely adapted to such a section; so also would the section-holder arrangement. The cleated separator would take up the spaces formerly occupied by the bee-ways themselves, so your crates and fixtures will come out just the same as before.

Now, perhaps another question may arise: "Do you propose to discard $1\frac{1}{8}$ sections in your manufacture and substitute in their place the no-bee-way section?" Not at all. That is to say, we will keep right on making the old-style sections as above, because, no matter how good a thing may be—no matter now much saving it may effect—it would take time, under the most favorable circumstances, to make the change. But all of our readers who appreciate the merits of this section, and want to use them another season, can be accommodated. Space will be given in our forthcoming catalog to describe the sections and other changes. Then our customers can have an option. But, of course, the old-style section will be made regular, and all will be supplied as otherwise ordered.

No doubt some of you will suggest at once that the cleated separator will cost more. Yes, a little more; but in the hive combination it would cost no more, for the reason that, where we make a little increase in one way we make a saving in another. The new-style separator

we hope to make of lumber that we ordinarily burn up, instead of cutting up good timber as we now do for the ordinary slotted separator.

THE CLEATED SEPARATOR AN OLD IDEA.

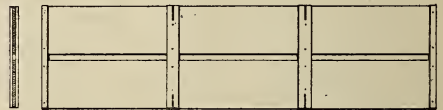
I have no engraving yet that shows the cleated separator I have been talking about, but have something pretty nearly like it. And this leads me to the idea that the cleated separator is not a new idea by any means. If you will turn to GLEANINGS for Nov. 1, 1888, you will find what I have been describing is illustrated and described by Mr. Oliver Foster; and at the beginning of this article I give the illustration as it then appeared; and right here will I give some of the good features enumerated by Mr. Foster.

1. It furnishes free communication from side to side.
2. It will not bend nor wrinkle as tin does, nor warp and split as ordinary wooden ones do.
3. It serves as a support for the sections (where the bee-space is used), doing away with the necessity for T rests or other supports under or between the sections (except at ends of case).
4. The lines of propolis resulting from the contact of these supports are thus avoided.
5. No trouble with sections catching on the edge of tins, nor with getting in the last sections.
6. The outside rows of sections can be easily turned to the central part of the case for completion.
7. The cost, I think, will be less than that of any perforated separator yet offered.

You will notice, incidentally, that the separator is made up of three pieces. Miles Morton's are made much in the same way, only his cleats are glued on.

The bees can go back and forth through such separators. This one feature alone is worth all the separator costs, because it permits of the combs being filled out fuller, owing to the fact that each individual section is not shut up completely by itself.

At a later time, in GLEANINGS for March 15, 1895, Mr. B. Taylor illustrated and described a similar separator. Mr. Taylor, in speaking of the advantage of such separator, says:



TAYLOR'S SEPARATOR.

This gives perfect sections that weigh a scant pound each when filled. The honey on both sides of the section comes within $\frac{1}{8}$ inch of the edge of the section, and is never broken in removing the separator, and the surfaces are $\frac{1}{2}$ inch apart in crating. In crating sections filled between common flat separators, the surfaces of the combs are $\frac{1}{2}$ inch apart, and require a larger crate for the same number of pounds.

Mr. Miles Morton has been using his arrangement for some eight or nine years, and Mr. Danzenbaker has been using something similar for about two years.

Now, then, brethren, the subject is open for discussion. I suppose there will be some criticism and some objections to such a section. Let us have them all now. I wish especially we might hear from those who have been using an arrangement similar to this, as to how they like it. I have not attempted to give all the points for the section.



A VISIT TO LANDRETHS' GREAT SEED-FARM.

I made another blunder here in not having an adequate idea of my undertaking. When we reached the station, and were informed it was only a mile to Landreths' farm, and a good nice walk, friend Selser and I decided to go on foot because we had been sitting all the morning. Well, we did get on to the Landreth premises after walking about a mile; but it was fully another mile on their own premises before we got into the heart of the business. What I should have done was to procure first a livery, especially since my arrangements permitted me to spend only two or three hours at the place. When you undertake to visit a garden that covers something like two square miles, you have a pretty big amount of travel on your hands, even if you take only a hasty look at the different fields of different crops. A great many times we are disappointed when we get really into grounds that we have read about in seed catalogs; but in this case it was just the other way. I had no conception of the immense size of the Landreth plantation, the number of buildings, the number of hands employed, the different kinds of machinery, etc. Some of the buildings are quite old, it is true; but many of them are very pretty, and the grounds, as a rule, are nicely kept in beautiful order. A great stone warehouse, so old that it is covered with English and Japanese ivy, especially attracted my attention. It is 200 feet long, 40 feet wide, and 3 stories high, and was built a good many years ago.

A little later, when I was asking them how they managed to cure their onion-sets so they kept from freezing, and also kept dry, I was told they were all placed in this great stone warehouse after the weather becomes too severe to leave them in the lofts which I will describe presently. When I inquired if they ever used fire heat to dry them out, the reply was, "Oh! no, no! Onions and onion-sets must be kept just as dry as possible. They must be dry, and at the same time cold; and the old stone warehouse that keeps out frost without the aid of any artificial heat is just the place to keep onion-sets from either freezing or sprouting."

Long before we got to the center of business I told friend Selser that there was an odor of something that, although familiar, I could not quite recall to mind what it was. After sniffing the air several times, however, I ejaculated, "Oh! radish seed—that is what I have been smelling; and when we get a little further you will find they have been thrashing out radish pods to get the seeds." When we got along far enough, that is exactly what we found they were doing.

I was greatly interested in their arrangements for curing onion-sets; and in a little time we saw, away off in the distance, almost

as far as the eye could reach, field after field covered with queer little structures that looked like chicken-coops—the letter A sort. I said to myself, "Why, the Landreths can not be in the poultry business to such an extent as this, surely." Then I found that these were trays on which the sets were cured after being sifted from the dry earth. Each tray holds two bushels of sets; and two trays are set together, letter A fashion, only not quite so tall. The trays are put in a long string, touching each other where they rest on the ground, and touching each other also where they fit together above ground, something like this:

This permits the air to pass all around under the trays as well as over the surface. It also admits the sun on all sides. I do not know what they do when it rains, but I suspect they manage to get them under cover, at least to a great extent, before any rain comes on them. When they are sufficiently dry they are put into large sacks and piled up high on wagons made on purpose, with sloping sides. I should have said that, in their business of growing onion-sets, they use something like 20,000 trays. Although I did not measure the trays I should think they are perhaps $2\frac{1}{2} \times 3$ feet. The bottom is thin light lumber, with some cracks to let the air through, the said cracks being too small to let even small onion-sets get out. Their crop this season will amount to about 80,000 bushels. Now, do not get the idea that I mean *eight* thousand. It is really *eighty* thousand bushels. They sometimes sow for onion-sets as much as 8000 lbs. of onion seed, and 250 men are frequently employed in caring for the crop. After the onion-sets are hauled in on these great wagons, they are put through a machine run by a steam-engine that sorts out the different sizes. I believe the orthodox size for onion-sets is not over $\frac{3}{4}$ inch in diameter; but they can be as small as you choose—the smaller the better. Those that are over $\frac{3}{4}$ inch in diameter are sold at a less price, and many are used for pickles. Those still larger are sold for table use for whatever they will bring in the market.

After being passed through the machine the sets are elevated by horse power up to different lofts in barnlike buildings made on purpose to store them. The floors in these lofts are made so close together that one has to stoop over in walking about. There are plenty of windows so the hot air of an August day may circulate through and under all the floors. The sets are stored on the different floors, say from four to six inches deep; and I never saw a prettier sight than some of the Bloomsdale pearl onion-sets—miniature onions, perfectly ripened, and they were indeed veritable "pearls." I am not sure but they were handsomer to my eye than would be the real pearls glistening in the crowns of royalty.

Like ourselves, the Landreths have discovered that it is cheaper to have their own repair-shops than it is to depend upon anybody else for repairing their implements. In fact, all the wagons, carts, and other vehicles

used on the premises are made by their own mechanics; and many machines that would never be needed anywhere else in the world are made here for their special business. I omitted to tell you that the machine for sorting onion-sets is a combination of cylinders made of wire screen. One cylinder goes inside of the other, and they are of different lengths. The arrangement is such that, when the sets are poured in from an elevated platform, each kind runs out down to the ground into its respective sack, ready to be pulled up into the buildings before mentioned.

The Landreths, after long experience, select the ground best adapted to growing each vegetable. Not only do they select their fields on the Bloomsdale farm, but they have a branch seed-farm at Norfolk, Va., of more than 1000 acres, for growing seeds than can be raised to better advantage further south.

Of course, there are lots of boys and girls on the Bloomsdale farm; and provision is made for these at a very pretty schoolhouse. There are many men who have spent all their lives with their families in the employ of the Landreths. No wonder; for this institution has now been running for 111 years. I can not imagine a prettier sight than a field of onion-sets with men, women, and children engaged in cultivating the crop and keeping it clean. Very likely they have a church as well as a schoolhouse; but I forgot to inquire in regard to that; and possibly a Sunday-school and Endeavor Society. Perhaps some of the Landreths will tell us about it.

As the older members of the firm were absent, one of the grandchildren (or possibly great-grandchildren) showed us around. If I am correct, it was Mr. Fletcher Landreth, a young man of eighteen.

The testing-grounds, where all varieties of garden vegetables advertised by the Landreths or anybody else are tested every year, are so extensive as to bewilder one. Why, it would have taken ever so much more time than I had allotted to my visit, to look over the testing-grounds alone.

Of course, the Landreths have a side-track of their own for loading up cars. These side tracks run manure in from the great cities, and carry out crops of seeds. Ever so many carloads of onion-sets alone are shipped north, south, and west every year. In their testing-grounds sometimes 5000 different varieties are tested. One who has undertaken on a small scale to determine which is the best vegetable out of half a dozen sorts can form an idea of the perplexities of this testing business when it runs up into the thousands.

When you stand over on the railroad track and take a birdseye view of the farms, a very pretty effect is noticed by the inscriptions on the roofs of the buildings. For instance, one great barn will have the word "Landreth's" covering the whole roof. Another building, some distance away, has the word "Garden." Still another barn has the word "Seed," in gigantic letters; and the last one of the group of four will have the word "Farms." All together it reads, "Landreths' Garden Seed Farms."

I was surprised to learn that their cabbage from which they grow their seed stands out in the open ground all winter. I was told about their special treatment necessary to do that, but can not now exactly recall it to mind. In fact, I asked so many questions it is not a little strange that I can not remember the answers to them all. I do not know how many buildings there are on this huge farm, but enough, I assure you, to make a pretty good-sized town. They are mostly in groups. Sometimes the groups are a quarter or even half a mile apart. This is to facilitate getting the crops under cover quickly when rains come up suddenly. Of course, they have steam thrashing-machines and special separators for working every variety of seed required in the home garden. It would not be at all strange if, with their great facilities for doing the work on a large scale, they could furnish good seed for less prices than it would be possible to do on a small scale. I believe most of the seed-farms in the vicinity of Philadelphia purchase their onion-sets of this firm.

By the time we got around to the depot we were pretty well tired out, I assure you, as it was a hot August day, and I regretted again that I did not know better than to undertake to go on foot all over the Landreth establishment in just two or three hours.

By the way, the proprietors have a beautiful album of photographic views of the premises I have tried to describe. There are 24 pictures in all, and there are some of the finest half-tone views in it I ever saw in my life. And, by the way, the Landreths were one of the first to adopt the custom of using photographs from life rather than exaggerated paintings of the products and premises. I was pleased to see on the front cover of said album this little motto:

NO ORDER IS TOO SMALL.
IS TOO MUCH TROUBLE.

I don't know but this would be a pretty good text for some of us who do business on a comparatively small scale.

HOW TO MAKE YOUR TOWN ORNAMENTAL, AS WELL AS USEFUL.

A little place called Blake, just seven miles from Medina, comprising a store, blacksmith shop, and about a dozen houses, has just met a streak of luck. The storekeeper, right on the corner, bought about half an acre of land, and proceeded to erect a dwelling. The first thing was to procure a good well of water. He paid some men \$24.00 for drilling 48 feet; and at that depth they struck a vein of water that fills a three-inch pipe, and throws it two feet above the surface of the ground. It will not go any higher than two feet, even if the three-inch pipe is reduced to half an inch; but, of course, the larger the pipe the larger the volume. Although this well was drilled only about four weeks ago, the owner has already piped it over into the road, or cross-roads, rather, right in the center of the town. Here he has a very pretty round pine tank, perhaps ten feet across and four feet high. As the well on his premises is a few feet above this tank, a very nice little fountain sends a stream up

several feet in the center; and some beautiful goldfish delight the urchins and other people as they sport in the sparkling spring water. Half a dozen teams can drive up to the tank and drink all at once; and in consequence of the severe drouth now prevailing, farmers are coming for miles around with sleds, stone-boats, etc., loaded with barrels, drawing water home to their stock; and these sleds and stone-boats did the writer quite a service, for they converted the loose dust into a bicycle-track almost equal to asphalt pavements. The head of water is sufficient to pipe it right into the greater part of the dwellings of the little town, and, in many places, clear into the upper rooms. The well belongs to Mr. A. K. Freedt, who owns the store and runs the postoffice on the corner.

Now, then, ye people who live in little towns like the above, you probably can not all have an artesian well; but you do not know this really until you have drilled down a hundred feet, more or less, to find out. But every little town can have a windmill and a beautiful watering-place right in the center of the town. The watering-place I have just described did not cost more than ten or fifteen dollars, goldfish and all.

OUR HOMES.

Come unto me, all ye that labor and are heavy laden, and I will give you rest.—MATT. 11:28.

Permit me to say that most of my talk on this text is borrowed from a sermon delivered by Rev. A. T. Reed, at Canaan Center, Wayne Co., O., on Sunday evening, Oct. 3. I shall take only one point of his discourse. Jesus calls all men unto him. "Come unto me," he says. He does not say, "Come to truth, come to honesty, come to temperance," nor even to purity of thought. He sums it all up by saying, "Come unto *me*, all ye that labor and are heavy laden." Now, since the world began, people have tried to substitute something in place of Christ Jesus the Son of God, the mediator between God and man. They have said, and do say now, "My religion consists in being honest; in being upright in deal, and in doing as I would be done by." These people reject the idea of Christ and the Christian religion. They say, if a man would do as he would be done by, is honest and fair toward all his fellow-men, pure in heart, and temperate in his habits, that is enough; and they declare that they are willing to take their chances with the best professing Christian among us. Very likely there are people who set a better example in many of these things than do a good many professing Christians. I confess it has always seemed very hard for me to admit that honesty, purity, and temperance, count for nothing—or, if you choose, count for comparatively nothing when the person refuses to accept Christ Jesus as the Son of God. Perhaps you have heard ministers talk on this subject; and very likely you have not been satisfied with their arguments and statements. Let me give you an

illustration, from Bro. Reed, that has made it plainer to me than it ever was before.

Suppose a man in your neighborhood wants to get some public office. He knows what people demand or desire in a public officer. He sets to work with energy and zeal to be a better man. He begins to be kind and neighborly; pays up old debts that nobody ever expected to get; apologizes for his past shortcomings, stops using tobacco, possibly beer-drinking also, becomes an advocate of temperance, has respect for the Bible and Christianity, and makes a sudden and apparently complete change in his whole life. Does this make him a Christian? He may, for the time being, present so clean a record as to put the average Christian to shame. But it is all a *policy* matter. His *heart* is not changed at all. He simply wants to get elected to office; after that he may hold out in his new "departure" or he may not. Perhaps I may say, parenthetically, that the chances are that he will not. What do you think of such a man? Is he a better man than he was before? Well, it seems a little hard to say he is not any better. The effect of his whole life on his neighbors and on the community is certainly better; and we all rejoice to see even such reforms. But how about the man's heart? He is trying to make all his friends and neighbors think he is a better man than he really is. To call things by their right names, he is now, with all his goodness, purity, and temperance, only one sort of hypocrite. Before, he acted out just as he felt. He seldom "put on" any thing, or even tried to make believe he was something he was not. I am sure you see the difference. The man who cultivates all of these virtues from the *right motives* desires to be better in *God's* sight; as to what the community or neighbors may think of it, is a secondary matter.

Now, the Bible teachings are to the effect that accepting Christ as the Son of God sums up *all* these virtues I have enumerated, and even many more; in fact, it sums up all that is good in the human heart. Accepting Christ as your Savior, and your only hope of pardon, embraces all of these things. He is the very essence and embodiment of truth. When Pilate asked him, "Art thou a king?" Jesus answered, "To this end was I born, and for this cause came I into the world, that I should bear witness unto the truth." Permit me to say that I have never yet found a moral man who lived up to all these things as he claimed to do. For a time it would seem as if he were an honest doubter; but where I become intimately acquainted with such people I have always, sooner or later, discovered something that seemed to be a reasonable explanation why they should so persistently refuse to accept Jesus Christ as the Son of God.

Now, friends, permit me to use an illustration that Bro. Reed did not use; and it is a subject that has been lying on my mind, and has been making me feel troubled and anxious. Jesus, when he said, "Come unto *me*," did not say, "Come and be a Congregationalist, a Methodist, a Baptist, an Episcopalian," nor any of these different sects or denominations.

He said, "Come unto *me*." After having come unto him, and making him first and foremost, there certainly can be no objection to uniting with any denomination you think proper. But denomination must never be first. In communion seasons I have frequently heard pastors, in inviting people to partake, say, "Let all who love the Lord Jesus Christ partake with us." I do not know whether this is always the case or not. It seems to me as though it should be so.

When I was having that pleasant trip with Mr. Hugh Vankirk, of Washington, Pa., we passed quite a pretty public building near his home. He is five or six miles from the city, and the little station near his home is called Vankirk Station. There is no church within several miles. Friend Vankirk pointed out the building I mentioned, and I asked him if it was a church.

"No, Mr. Root, it is not a church—it is a Sunday-school. The building was made on purpose for a Sunday-school, and has always been used as such. Of late we have been having preaching almost every Sunday. The ministers are of various and different denominations; but as the audience is made up also of various denominations we have it understood that the speaker is not to use the house and occasion to further the interests of his particular school or organization."

My attention was aroused at once, and I asked a good many questions. The building was erected by the people. Friend Vankirk, who is a mason and brick-layer, laid the foundation and built the chimney. Others did likewise according to their trades. Then a large enthusiastic Sunday-school, with a fine library, was organized. The minister who preaches is paid cash down after the sermon; and, if I am correct, they have some money ahead. The Sunday-school teaches Christ Jesus and nothing else. The various ministers who come by invitation to preach, preach only Christ Jesus, and the people all come. If any particular denomination were to preach, there are a good many who would not come. We who live in country places know all about this. In little towns all over the United States there are often three or four churches—a good many times three—where there are not people enough in the whole three churches to make one fair-sized audience, or to pay a minister a decent salary. I have often thought, and frequently said, that it was a pity we could not do with these churches as the bee-keeper does with his weak colonies of bees when winter comes. He breaks up three or four colonies and unites them in one. If left to go through the winter alone they would all die, or pretty nearly so. United they make a rousing colony that can drive out intruders, and make a stand against any enemy. Is it not so, dear friends, with the churches? A saloon tries to come into a town. The people are so busy in settling differences between their denominations that they forget to fight the saloon-keeper, and he gets their boys away from the Sunday-school. If the little town were united—if the Christian people were all one body, pulling the same way, repelling sin

from every point of the compass—the saloon, the dancing-teacher, and the professional gambler would be afraid of them, and would conclude the town was not a good locality for their occupation. I do not know what should be done to bring about this happy millennium, where all people shall understand and say that the only really *important* thing in this world is to come to Christ—"come unto *me*."

Mr. Vankirk told me the people were all pleased with this union Sunday-school and union preaching. He said the only objection he had ever heard was from ministers themselves. Dear friends, perhaps I am getting on dangerous ground. If so, may the dear Savior set me right; but is it true that it is the *ministers* themselves who are greatly responsible for so many sects? Our own Congregational Church has made several blunders, to my knowledge, in building new churches and trying to build up a church where another denomination was not needed. Within ten miles of where I now sit a beautiful brick church with stained-glass windows stands unoccupied, or at least has preaching only at intervals by a pastor who does not live in the town. The expense of building this church pretty nearly ruined one or two good old farmers financially; and yet the church stands empty and unused a great portion of the time.

One more thing I want to speak of, and perhaps I am treading on dangerous ground again. The ministers of these three or four churches where only one is needed are very poorly paid. As they are poorly paid they have to work at something else to make a living. A cheap minister or a cheap school-teacher is a very poor investment. I need not enlarge on this point. The man who is to expound the Scriptures should be one of the best and brightest men in the whole community, and the people should pay enough to support a good man.

Please bear with me a little further when I suggest that the Electropoise people would never have found a hundred *ministers of the gospel* in our land to help sell their fraud, were it not true that there is a mistake somewhere. Dr. Wilford Hall, as you may remember, pushed his water-cure fraud mainly through ministers of the gospel—that is, people who had "Rev." attached to their names. I know, dear brothers of the clergy, there are many devoted and saintly men who are very poorly paid for their services. I know of some who have been promised a meager salary of considerably less than \$1000 a year, but who never got—at least not promptly—the amount subscribed. I do not know how many places there are where Christian people of all denominations unite to support a church and pay a minister. I mentioned one such I found in Florida. There are difficulties in the way that I confess I am not able to manage. We can get along with communion very well; but during a revival season, when new converts are to be added to the church, I confess I am not equal to the task of deciding how it should be done; but I have unbounded faith that the dear Savior, who invited us clearly and plainly to come to him with all difficulties of what-

ever nature, will manage this one too, especially since it is only a question as to *how* and in what *manner* we shall come to him and bow at his feet, as we give him our lives and "crown him Lord of all."

A SERMON TO BOYS AND GIRLS.

THE BOYS' BAD BARGAIN.

By W. T. Elsing.

A great many years ago twin brothers were born. I do not know whether their mother dressed them alike, as mothers frequently do now, but, although they may have worn the same kind of clothes, there never were twins who differed so much as these two boys. They were just as different as day is from night, or as light from darkness. One of the boys was very quiet. He was a shepherd; and at night, when he had brought the flock into the fold, he would go to his tent, kindle his fire, and cook his supper. But the other brother was very restless; he did not like walking quietly behind a flock of sheep, but was far more at home when on the chase. So he became a hunter, and went out from the tent every morning with the bow across his shoulder, and case full of arrows.

Jacob, the shepherd boy, would often run into his mother's tent with a pitcherful of milk, or a bundle of wool for her to spin into coats and dresses; therefore the mother loved him. Esau, the other brother, often came home, carrying on his shoulder not only his faithful bow but a good fat deer for his father.

In the country where these boys lived, there was a law that the first-born son should receive a double portion of his father's money. When the father died, the first-born son also received his father's blessing and other great honors. This was called the birthright, and belonged to Esau, the hunter.

One day Esau had been hunting all day, and had become very hungry in roaming through the fields for game. At last he came to his brother's tent. Jacob had his sheep in the fold, and had cooked some porridge of red bean meal. The whole tent was full of the delightful odor of the steaming porridge-pot. The hungry hunter said, "Give me of that red." He meant, of that red porridge; but a hungry man uses few words. Jacob, who was very quiet and never in a hurry, but always ready to drive a sharp bargain, said:

"Esau, you know you were born a little before me, and, according to our law, the birthright is yours; but I'll tell you what I will do with you. If you will give me your birthright I will give you my porridge."

Esau said, "Well, I am going to starve any way, if I don't get something to eat. I may just as well sell the birthright, for the best birthright in the world is of no value to a dead man. Give me your porridge and I will give you my birthright."

But Jacob, who was in some ways a mighty mean boy, and who always looked out for the biggest end of a bargain, said, "You swear to me, that you will sell your birthright for the porridge."

Esau then made a solemn promise before God that he would stick to the bargain. So Jacob gave to Esau the porridge, and some bread and water.

After Esau had eaten he went away and fell asleep in his own tent; but, oh how sorry he was afterward that he had made such a bad bargain! Day and night, with tears and a sad heart, he tried to get the birthright back, but he failed. Esau has ever since been known as the boy who made a bad bargain. Esau made a bad bargain because he gave more than he received; and every boy who gives more than he receives makes a bad bargain. Esau has been dead nearly 4000 years; but his foolish bargain has never been forgotten.

But although the first Esau is dead, there are a good many boys who might with good right be called "Esau." Some of these boys are very popular, just like Esau; they take a great deal of interest in many sports. There are many of them fine fellows, too, but they make bad bargains, and therefore we will call them "Esau."

I.—THE SMOKING ESAU.

The boy who begins to smoke makes a bad bargain. We will say he gives a nickel for his first

cigar. Now, what does he get? A white, deathly face, an awfully sick stomach, and sometimes a good whipping from his mother. I think there is not a boy in America so foolish that he would not rather have a nice bright five-cent piec than a pale face, a sick stomach, and a whipping. So you see the boy makes a bad bargain with his first smoke. But, you say, it is not fair to judge by the first smoke. The boy will not always be sick, and his mother will not always object to his smoking. That is true. Let us, therefore, take not the first, but the one hundredth smoke. What does the boy now give for smoking? He gives not one but a good many five-cent pieces. It will all depend upon how much money he has. Suppose he is a poor boy, and spends only five cents each day until he is twenty-one. This makes 35 cents a week, \$18 20 a year, which, put in a bank at a low rate of interest, would become a sum of over \$275 by the time the boy is twenty-one. Now, what does the young smoker get for his \$275? He gets only one thing, and that is pleasure. There is not any other advantage in smoking; and the only question is, "Does it pay to acquire an appetite which is not natural, at so great a cost?"

"Ah! but," you say, "I get something else. I am in the fashion."

I do believe that you are not in the fashion with the majority of good people. If I should call on all the old smokers in America, and say, "Gentlemen, which boys do you admire most—those who smoke or those who do not smoke?" I am quite sure the majority of them would say, "Although we smoke ourselves, we like the boys best who do not smoke." The boys who do not smoke are looked upon by all sensible people as the best.

The smoking boy makes a bad bargain, because all good physicians will tell you that smoking is bad for a boy who is growing. To the boys who already smoke, and are not willing to give it up, let me say that cigarette-smoking is the worst thing you can do. The nicotine, or tobacco-oil, is a deadly poison; and if you are determined to smoke, the least dangerous way is to smoke a long clay pipe, which partly draws in the poison.

But smoking is a bad bargain, because, when you once begin it is hard to give it up. A little over three hundred and fifty years ago the only smokers in the world were the North American Indians. The tobacco-plant was first brought to Spain, and there it grew in the yards as an ornamental plant until a man named Nicolo Manardes said, "Tobacco is good as a medicine." Men all over Europe began to use it; but it was at first looked down upon by almost every government. Two hundred and fifty years ago the men who smoked in Russia had their noses cut off. In Turkey the Sultan beheaded smokers in the most cruel manner. In England, King James I. was very bitter against it. He said, "It is loathsome to the eyes, hateful to the nose, harmful to the brain, and dangerous to the lungs; and the stinking fumes resemble the smoke of the bottomless pit." But all the opposition of kings did no good. The habit was stronger than sword, sultan, or sword. The people kept on smoking. They liked it, and the habit grew stronger and stronger, until to-day almost every man in Persia and Turkey smokes. Millions in Europe smoke; and in Asia, not only the men but women, and even the girls, smoke.

A habit which, in three hundred years, spread over the whole world, must be fearfully strong. It is with smoking as it was with the threads with which the Lilliputians bound Gulliver. The story is so interesting I will tell it to you. Gulliver was a sailor and a great traveler. He had been in about every part of the world. One day he was wrecked on the shores of a strange land. All of the crew were drowned but Gulliver. He was very tired and wet, so he lay down on the warm sand and went to sleep. The people who lived on the island were very little, and were called Lilliputians. The largest were not as big as Gulliver's thumb. When they saw him, like a mountain, sleeping on the sand, they were frightened, but soon came nearer. They held a mass-meeting, and determined to take Gulliver prisoner. So they got ladders and ropes, and came to him. They put the ladders on the sides of his body, and climbed up. Then they carried thousands of threads across Gulliver's body, and drove little pegs into the sand to fasten the threads, so they worked a great many hours. Finally Gulliver woke up and tried to stir; but he was fastened so

securely he could do nothing. The little men shot thousands of small arrows at him, and they pricked like needles in his face. One of the little threads was no stronger than a cobweb; but many of them bound Gull ver so firmly that he could not get away.

It is just so with the habit of smoking, and therefore I say the boy who begins to smoke runs a chance of losing his freedom, his money, and his health, which is also a bad bargain.

II—DRINKING ESAU.

If the boy who smokes makes a bad bargain, the boy who learns to drink makes a much worse one. Drinking is much older, more expensive, more dangerous, and more degrading than smoking. If all the money which is spent for strong drink in our country were divided equally among the different families, rich and poor, each family would receive \$90.00 a year. In the United States alone, 75,000 men die every year of drunkenness; 205 every day, one every seven minutes. The cup has killed far more people than the cannon. You all know how much sorrow and wretchedness are caused through strong drink. Many children are suffering this very day because their poor fathers learned to drink, and made the bad bargain years ago.

A great many years ago the Lacedemonians, a people of Greece, used to make their slaves drunk once a year. They brought these drunken men into a circus-ring that all the free children might see how disgusting a drunken man looked and acted, and that the children might never follow the example of the slaves.

Not long ago a poor drunken boy said he was not afraid to fight any man in the town. When he could get no one to fight with him, he went away to the railroad track. There the engineer saw him standing with his fists doubled up, ready to strike the engine. It was impossible to stop the express train quick enough, and the poor boy's body was crushed. He made a bad bargain; he gave his life for a drink.

A drinker with inflammation in his eyes said, "Doctor, can you cure my eyes?"

The doctor replied, "I can if you will stop drinking."

"Give up my drinks? Oh, no! Good-by, eyes," and he sold his eyes for a glass of whisky.

III.—THE SWEARING ESAU.

The boy who swears makes a terribly bad bargain. I can see how a hungry boy might be lead to steal a loaf of bread, if it were steal or starve, but I can not understand why any boy should ever swear. No one ever became any richer, wiser, or better for swearing. The biggest fool can swear as well as the wisest scholar. Swearing is hurtful to him who does it. It shocks all good people, and it grieves God. Swearing is the language of hell. The swearer is like a foolish fish who bites at a bare hook. Smoking, drinking, and swearing come to us like the Arab's camel. On a very cold night an Arab was sleeping in his tent, and the camel was on the outside. The camel woke the master up and said, "Master, it is very cold out here; may I please put my nose into the tent?"

"Yes," the Arab said, "You may put just your nose in."

"O master! it is so nice in your tent! won't you please let me put my head in too?"

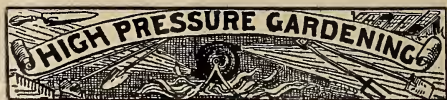
After a while the master said, "Yes, put in your head."

Soon the camel pushed a little farther, and begged that he might put his shoulders in. This was also granted. Then without any other word the camel pushed in his whole body.

"It is very uncomfortable here," said the Arab.

"Yes," said the camel. "It would be much more comfortable for me if you would go out and give me the whole tent."

Boys, the Arab made a bad bargain when he allowed the camel to put in his nose; and when we allow the first glass to touch our lips we make an awfully bad bargain with the old demon Alcohol.



With the crowd of business we have had during the past season I did not get over to see my neighbor Terry until well along in September. I said to myself several times, "Now, old fellow, first you know something will turn up that will make you feel sorry you have not kept track of what is going on over in Summit Co., especially at friend Terry's." When I got hold of the *Practical Farmer* for Sept. 11 I thought that very thing, for here is what I found. Let me say, first, that some college (agricultural) professor had been severely criticising Terry's teachings in regard to cutting potatoes to one eye, and Terry replies. In his reply he incidentally gives the result of an experiment made during the past season, and I clip as follows in regard to this experiment:

SEVENTY-FOUR HILLS FROM ONE TUBER.

Last May I took one medium-sized tuber and cut it into one-eye pieces, about such as we usually plant. Then I carefully cut each of these one-eye pieces into about six smaller pieces, in such a way as to leave a little point of the eye on each piece, as well as I could. The potato is a new one, not named, of strong vitality. Do not write and ask about it, as it is not on the market yet. Mr. Wm. Henry Maule, the well-known seedsman, sent me the potato. It was a fine-looking tuber, and took my fancy. So I thought I would raise as many from it as I reasonably could. It came after our crop was planted, and we had no ground plowed that was suitable. So after mowing off the clover I plowed two square rods of clover sod. This was a great mistake. The clover had pumped the water out of the subsoil pretty thoroughly. The ground was too dry. I wished a hundred times that I had known beforehand, and plowed the land early, and kept surface harrowed. And I would have put half a ton of manure on last fall, too, if I had known it. Then I might have done something. Well, I got the potatoes started, although it was too dry for a time. Now we are getting plenty of rain. There are 74 hills growing in about two square rods. The hills are 33 inches apart each way. They now cover the ground about as well as you often see it done. I think any grower would say there were tops enough on the ground. They are all good. Eighty tubers would plant an acre. They are not ready to dig yet, so I will not say anything about the yield, but we have the plants. Only about one-sixth of an eye was planted to a hill! I could have carried it further and got more hills, but my wife said: "What is the use? only experts will believe what you have done now." So I quit. Of course, these very small pieces required more care in cutting, and finer soil, and better attention, than whole-eye pieces would, and far more than whole tubers used for seed would. This fine cutting is not practical at all, except when you want to get all you can from a few tubers. But it helps to establish my point, and very greatly, too, that I can make all the eyes grow, and get good thrifty plants from all of them, practically.

After reading the above, you may be sure I was not long in getting on my wheel and going over to see the 74 hills grown from one tuber. Every hill was perfect, and the single vine in each hill was remarkably strong and rank. Friend T. put his hand into one of the hills and took out two tubers weighing, I should judge, a pound or more, but they were then not quite done growing. I estimated there would be about a barrel of potatoes as the result of that one tuber. The potatoes have now been dug, and, if I remember, there

I never could raise enough potatoes to do us before I got your potato-book, I planted 2 bushels then. Now I have to plant only half a bushel, and raise more than enough to do us. In 1889 I raised 48 measured bushels from 1/2 bushel planted and cultivated according to your book. Nearly every one laughed at me for giving such shallow cultivation—said that I only scratched around; but they did not laugh at the yield.

Morgan, Ky., July 28.

J. P. MOORE.

was not quite a barrel, but pretty nearly. I at once wrote to Maule, asking the price of a single tuber; but he told me there would be none for sale until the year 1899. The season of 1898 will be devoted to increasing the stock; but I finally did get a tuber to experiment with in the greenhouse, with the understanding that the stock belongs entirely to Wm. Henry Maule. I am going to work with this one tuber at once, and increase it by means of the jadoo fiber and greenhouse all I possibly can until time to plant potatoes next spring. Oct. 1, 1898, Maule is to pay me a reasonable price per bushel for as many potatoes as I succeed in growing in just one year. This particular new potato seems to possess earliness and vitality; but we can not just now tell whether it is Terry's skill or the remarkable productiveness of the potato—perhaps both.

Now, then, friends, has anybody ever tried the experiment of seeing how far one potato could be made to increase in just one year by propagating it during winter as florists grow geraniums, coleis, and other similar plants? I will try to report progress to you as we go along. The worst trouble I anticipate is in getting the potato to sprout and grow so soon after it has been dug.

A REFRESHING CONTRAST IN THE WAY OF TREE AND PLANT CATALOGS.

In Lovett's pamphlet for autumn of 1897 we found the following in regard to two of our new friends:

GOLDEN MAYBERRY.

This unique fruit may be all that is claimed for it, but candor compels us to state that we are growing impatient to see for ourselves what it is actually like. We have now had it for three years; and, although the bushes grow well, they have as yet failed to produce any fruit, and we hesitate to longer publish the descriptions of the originator and disseminator until we know *positively* it is what it is claimed to be.

STRAWBERRY-RASPBERRY.

From an intimate acquaintance with this berry we are convinced it is not a hybrid of the strawberry and the raspberry, as claimed, but it is a true raspberry of herbaceous habit (the top dying down and the root surviving as with the pæonia and many cultivated species of flowering plants), and has no strawberry blood in it whatever. It has proved to be a wonderful grower, always clean and vigorous, with a mass of deep-green foliage; and although it suckers immoderately it is extremely hardy, and is prolific in bearing for a period of some ten or twelve weeks—from early in July until frost. The berries are of enormous size, of the richest shade of bright crimson imaginable, and are in very truth the most exquisitely beautiful of any berry we ever looked upon; but, alas! it is sadly deficient in flavor. Some have compared it to dried apples, others to a sweet orange sucked dry. Seriously, it is decidedly insipid as a dessert fruit, but, strange as it may seem, when cooked it is rich, sweet, and good.

The above really rejoices my heart. The Lovett people have finally tested these things on their own ground, and have come out square and honest about it. Their experience is exactly like my own. The Logan berry, however, promises to be something of real value. On our grounds it has not as yet borne fruit enough, but it will, perhaps, when it gets older.

GARDENING FOR THE LATTER PART OF OCTOBER.

In addition to what was said in our last issue, I would again remark that now is the

time to commence gardening under glass. If you have valuable varieties of strawberries, you can keep them putting out runners, and increasing, clear on till Christmas, by the use of a few sash. But let me suggest where you are in danger of making a mistake. Shelter your plants with the sashes whenever there is a hard freeze. Even quite a frost will not injure strawberries at all. When the ground begins to freeze, however, so as to be hard, then put on the sash. But do not cover the plants up during a snowstorm. Strawberries seem to rejoice in being covered with snow. I have actually seen harm done by leaving the sashes on so as to keep *off* the snow during a severe freeze. Strawberries and other hardy plants are better off with a covering of snow than with sashes; and the same will apply to lettuce where it is sufficiently hardened—say cold-frame lettuce-plants. Whenever there is severe freezing, however, without any snow, then have your sashes on. Keeping this in mind will not only save you labor in handling sashes, but it will really save your plants. The snow is nature's covering and protection. Permit me to say right here that we have put in some new and expensive machinery for making an improved article of hot-bed sash, and I believe our prices are considerably below those of good substantial sash anywhere else. See prices in Special Notices.

Our fall catalog—that is, our usual catalog with prices changed according to the present date (so far as we can fix prices at this time), will be ready to mail to applicants soon after this reaches you.

OUR BRIEF VISIT TO T. GREINER, LA SALLE, NIAGARA CO., N. Y.

Friend Root.—I have just been reading what you say about your visit here (page 713). It seems to me you have "put it on a little thick." In fact, I knew that, in the hurry of summer's work, and in consequence of my being busy otherwise, the place had a neglected appearance; but had I been fortunate enough to be at home when you came, I could have shown you many things of interest that the unguided visitor could not possibly have found or discovered. The best sights you might have seen are nearly half a mile away from the home place.

In regard to that new onion which your printer named "Garganus," let me state that it is Burpee's Gibraltar, a most excellent variety for fancy trade, equal to the imported Spanish, nearly as large, as mild, and of a light straw color; must be sold promptly, as it does not seem to be a good keeper, especially in a wet season like this. I hope that next year we shall be able to procure seed, at least by the ounce; for the past three years we could get it only by the packet, at rather high prices. As to the coal-ash bed, I believe a good layer of manure *under* the coal ashes was responsible for the great thrift of the plants more than any thing else.

T. GREINER.

La Salle, N. Y., Oct. 8.

Friend G., I know how it is from my own experience. Sometimes visitors whom I very much wanted to see have gone over our grounds and entirely overlooked the most important things because I was not there to give particulars. Many thanks for correcting me about that onion. Since you mention it, I remember now that friend Weckesser did call it Gibraltar instead of Garganus; and, by the way, we will try to have some of the Gibraltar for sale, at least in packets, another season.

Books for Bee-Keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

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| 8 | Bible, good print, neatly bound..... | 20 |
| 10 | Bunyan's Pilgrim's Progress**..... | 50 |
| 20 | Illustrated Pilgrim's Progress**..... | 75 |
| This is a large book of 425 pages and 175 illustrations, and would usually be called a \$2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more. | | |
| 6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each. | |
| 5 | Harmony of the Gospels..... | 35 |
| 3 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*..... | 10 |
| 1 | Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper..... | 05 |
| 2 | Same, board covers..... | 20 |
| 5 | Same, words and music, small type, board covers..... | 45 |
| 10 | Same, words and music, board covers..... | 75 |
| 3 | New Testament in pretty flexible covers..... | 05 |
| 5 | New Testament, new version, paper covers..... | 10 |
| 5 | Robinson Crusoe, paper cover..... | 10 |
| 4 | Stepping Heavenward**..... | 18 |
| 15 | Story of the Bible**..... | 1 00 |
| A large book of 700 pages, and 274 illustrations. Will be read by almost every child. | | |
| 5 | "The Life of Trust," by Geo. Muller**..... | 1 25 |
| 5 | Tobacco Manual**..... | 45 |
| This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit. | | |

BOOKS ESPECIALLY FOR BEE-KEEPERS.

- | Postage | | Price without postage. |
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| 15 | A B C of Bee Culture. Cloth..... | 1 10 |
| | Advanced Bee Culture, by W. Z. Hutchinson..... | 50 |
| 3 | Amateur Bee keeper, by J. W. House..... | 22 |
| 14 | Bees and Bee-keeping, by Frank Cheshire, England, Vol. 1.s..... | 2 36 |
| 21 | Same, Vol. II.s..... | 2 79 |
| or, \$5.25 for the two, postpaid. | | |
| 10 | Bees and Honey, by T. G. Newman..... | 90 |
| 10 | Cook's New Manual. Cloth..... | 1 15 |
| 5 | Doolittle on Queen-Rearing..... | 95 |
| 2 | Dzierzon Theory..... | 10 |
| 3 | Foul Brood; Its Natural History and Rational Treatment..... | 22 |
| 1 | Honey as Food and Medicine..... | 05 |
| 15 | Langstroth Revised by Ch. Dadant & Son..... | 1 10 |
| 10 | Quincy's New Bee-Keeping..... | 1 40 |
| | Thirty Years Among the Bees, by H. Alley Handling Bees, by Langstroth. Revised by Dadant..... | 08 |
| | Bee-keeping for Profit, by Dr. G. L. Tinker..... | 25 |
| 5 | The Honey Bee, by Thos. William Cowan..... | 95 |
| | British Bee-keeper's Guide Book, by Thos. William Cowan, England.s..... | 40 |
| 3 | Merrybanks and His Neighbor, by A. I. Root..... | 15 |
| 4 | Winter Problem in Bee-keeping, by Pierce..... | 46 |

MISCELLANEOUS HAND-BOOKS.

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| 5 | An Egg-Farm, Stoddard**..... | 40 |
| | Amateur Photographer's Hand-book**..... | 70 |
| 5 | A B C of Carp Culture, by Geo. Finley..... | 35 |
| 5 | A B C of Strawberry Culture**By T. B. Terry..... | 35 |
| Probably the leading book of the world on strawberries. | | |
| 3 | A B C of Potato Culture, Terry**..... | 35 |
| This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations. | | |

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| | Barn Plans and Out-Buildings*..... | 1 50 |
| | Canary Birds. Paper..... | 50 |
| 2 | Celery for Profit, by T. Greiner**..... | 25 |
| The first, really all and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once, without any assistance except from the book. | | |
| 10 | Draining for Profit and Health. Warring.. | 1 35 |
| This is, perhaps, the most systematic, comprehensive, and thorough work on grape culture now in print; in fact friend Fuller here tells us how, by easy steps, to make any grapevine profitable to the work, and make a pleasant order of appearance; and he makes it as attractive as a piece of fiction; and the best part of it is, that you get great crops of beautiful grapes during almost any kind of season. We have tested the system, and know whereof we speak. | | |
| 8 | Domestic Economy, by I. H. Mayer, M. D.** | 30 |
| This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the master of domestic economy his life-study. The regular price of the book is \$1.00; but by taking a large lot of them we are enabled to make the price only 30 cts. | | |
| 10 | Farming for Boys*..... | 1 15 |
| This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening. | | |
| 7 | Farm, Gardening, and Seed-Growing**..... | 90 |
| This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages. | | |
| 10 | Fuller's Grape Culturstur**..... | 1 15 |
| 12 | Gardening for Pleasure, Henderson*..... | 1 35 |
| While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 404 pages and 203 illustrations. | | |
| 12 | Gardening for Profit**..... | 1 35 |
| The latest revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, of all who have made their money on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. | | |
| 8 | Gardening for Young and Old, Harris**..... | 1 25 |
| This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people, as old is brought in, is put in a list happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings. | | |
| 10 | Greenhouse Construction, by Prof. Taft**..... | 1 15 |
| This book is of recent publication, and is as full and complete in regard to the BUILDING of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully. | | |
| 5 | Garden and Farm Topics, Henderson**..... | 60 |
| | Gray's School and Field Book of Botany..... | 1 80 |
| 5 | Gregory on Cabbages; paper*..... | 20 |
| 5 | Gregory on Squashes; paper*..... | 20 |
| 5 | Gregory on Onions; paper*..... | 20 |
| The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business. | | |
| 15 | How to Make the Garden Pay**..... | 1 35 |
| By T. Greiner. This is a new book, just out, and it gives the most explicit and full directions for gardening under glass of any book in the world. Those who are interested in hot-beds, cold-frames, cold-greenhouses, hot-houses or glass structures of any kind for the growth of plants, can not afford to be without the book. | | |
| | Handbook for Lumbermen..... | 05 |
| 10 | Household Conveniences..... | 1 40 |
| 2 | How to Propagate and Grow Fruit, Green*..... | 15 |
| 10 | How to Get Well and Keep Well..... | 90 |
| An exposition of the Salisbury system of curing disease by the "lean mean diet." | | |
| 2 | Injurious Insects, Cook..... | 10 |
| 10 | Irrigation for the Farm, Garden, and Orchard, Stewart*..... | 1 10 |
| This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts. | | |
| 7 | Market-gardening and Farm Notes, by Burnett Landreth..... | 75 |
| The Landreth's are the pioneer seedsmen of America; and the book is worth fully as much as we might expect it to be. I think I received hints from it worth the price, before it had been in my hands fifteen minutes. It is exceedingly practical, and tells us what is to be done and what is BEING done, more than it discourses on theory. | | |